



# TOLL BRIDGE PROGRAM OVERSIGHT COMMITTEE

## MEETING MATERIALS

February 3, 2011

CALTRANS

BAY AREA TOLL AUTHORITY

CALIFORNIA TRANSPORTATION COMMISSION







## *Letter of Transmittal*

**TO:** Toll Bridge Program Oversight Committee  
(TBPOC)

**DATE:** January 26, 2011

**FR:** Program Management Team (PMT)

**RE:** TBPOC Meeting Materials Packet – February 3, 2011

---

Herewith is the TBPOC Meeting Materials Packet for the February 3<sup>rd</sup> meeting. The packet includes memoranda and reports that will be presented at the meeting. A Table of Contents is provided following the Agenda to help locate specific topics.

## TBPOC MEETING

**February 3, 2010, 10:00am – 1:00pm**

**TY Lin Office, Two Harrison Street, Suite 500, San Francisco, CA**

**TBPOC - PMT pre-briefing, 10:00am – 11:00am**

**TBPOC meeting, 11:00am – 1:00pm**

	Topic	Presenter	Time	Desired Outcome
1.	<b>CHAIR'S REPORT</b>	S. Heminger, BATA	5 min	Information
2.	<b>TBPOC/ ABF/ TYLMN DISCUSSION</b> a. Self-Anchored Suspension (SAS) Superstructure Mitigation and Acceleration Update	PMT	45 min	Information
3.	<b>CONSENT CALENDAR</b> a. TBPOC Meeting Minutes: 1) December 9, 2010 Meeting Minutes*	A. Fremier, BATA		Approval
	b. Final Project Progress and Financial Update December 2010**	A. Fremier, BATA		Approval
	c. Contract Change Orders (CCOs): 1) Yerba Buena Island Detour CCO 119-S4 (Stormwater Pollution Prevention)* 2) SAS CCO 167 (LED Light Fixture Procurement)*	D. Noel, CTC		Approval
4.	<b>PROGRESS REPORTS</b> a. TBSRP 4 <sup>th</sup> Quarter 2010 Risk Management Update	J. Tapping	10 min	Information
	b. Draft 2010 Fourth Quarter Project Progress and Financial Report**	A. Fremier, BATA	2 min	Approval
	c. FHWA 2010 Annual Update*	T. Anziano, CT	3 min	Approval
5.	<b>SAN FRANCISCO-OAKLAND BAY BRIDGE UPDATES</b> a. Yerba Buena Island (YBI) Transition Structures No. 1 1) Update	T. Anziano, CT	5 min	Information
	b. Oakland Touchdown No. 2 1) Temporary Oakland Touchdown Detour Scope and Budget* 2) Communications Plan*	B. Maroney, CT B. Ney, CT	15 min 10 min	Approval Approval
	c. Temporary Bicycle/ Pedestrian Access to Yerba Buena Island*	S. Hulsebus, CT	10 min	Information
6.	<b>ANTIOCH/ DUMBARTON BRIDGE SEISMIC RETROFIT UPDATES</b> a. Updates*	M. Forner, CT	3 min	Information

Topic	Presenter	Time	Desired Outcome
b. Antioch Bridge Retrofit CCO 6-S0 (Seismic Bearing Installation Sequencing & Restrainer Brackets)*	D. Noel, CTC	2 min	Information
<b>7. OTHER BUSINESS</b> a. San Mateo-Hayward Bridge Retrofit Rehabilitation Update*	M. Pazooki, CT P. Lee, BATA	10 min	Information
<p style="text-align: center;"><b>Next TBPOC Meeting: March 3, 2011, 10:00 AM – 1:00 PM</b>  <b>Director's Conference Rm, 1120 N Street, Sacramento, CA</b></p> <p><i>NOTE: West Approach Dog Park Groundbreaking Event scheduled on February 3, 2011, 1:30-3:00PM, at the Beale Street Anchorage (@ intersection of Beale and Bryant Streets, San Francisco)</i></p>			

\* Attachments

\*\* Stand-alone document included in the binder

\*\*\* To be sent under separate cover



You are  
cordially invited to the



Thursday • February 3, 2011  
1:30 - 3:00 pm

Beale at Bryant Streets, San Francisco, CA  
(Beale Street Anchorage)

*In the event of rain, please  
proceed to Bayside Village Recreation Room  
at 160 Brannan Street.*



- ★ Groundbreaking Event Site**  
Beale & Bryant Streets (Beale Street Anchorage)  
San Francisco, CA
- Ⓑ Alternate Location Site (In the event of rain)**  
please proceed to Bayside Village Recreation Room  
160 Brannan Street



THE SAN FRANCISCO-OAKLAND  
BAY BRIDGE SEISMIC SAFETY PROJECTS

CALTRANS BAY AREA TOLL AUTHORITY CALIFORNIA TRANSPORTATION COMMISSION



City & County of San Francisco  
Department of Public Works  
Redevelopment Agency

[www.facebook.com/rinconhilldogpark](http://www.facebook.com/rinconhilldogpark)

## *Table of Contents*

### **TBPOC MEETING February 3, 2011**

<b>INDEX TAB</b>	<b>AGENDA ITEM</b>	<b>DESCRIPTION</b>
1	1	<b>CHAIR'S REPORT</b>
2	2	<b>TBPOC/ABF/TYLMN DISCUSSION</b> a. Self-Anchored Suspension (SAS) Superstructure Mitigation and Acceleration Update
3	3	<b>CONSENT CALENDAR</b> a. TBPOC Meeting Minutes 1) December 9, 2010 Meeting Minutes*  b. Final Project Progress and Financial Update December 2010**  c. Contract Change Orders (CCOs) 1) Yerba Buena Island Detour CCO 119-S4 (Stormwater Pollution Prevention Plan)* 2) SAS CCO 167 (LED Light Fixture Procurement)*
4	4	<b>PROGRESS REPORTS</b> a. TBSRP 4 <sup>th</sup> Quarter 2010 Risk Management Update  b. Draft 2010 Fourth Quarter Project Progress and Financial Update**  c. FHWA 2010 Annual Update*
5	5	<b>SAN FRANCISCO-OAKLAND BAY BRIDGE UPDATES</b> a. Yerba Buena Island Transition Structures (YBI) No. 1 1) Update  b. Oakland Touchdown No. 2 1) Temporary Oakland Touchdown Detour Scope and Budget* 2) Communications Plan*  c. Temporary Bicycle/ Pedestrian Access to Yerba Buena Island*
6	6	<b>ANTIOCH/ DUMBARTON BRIDGE SEISMIC RETROFIT UPDATES</b> a. Updates* b. Antioch Bridge Retrofit CCO 6-S0 (Seismic Bearing Installation Sequencing & Restrainer Brackets)*



## *Table of Contents*

### **TBPOC MEETING February 3, 2011**

<b>7</b>	<b>7</b>	<b>OTHER BUSINESS</b>
		a. San Mateo-Hayward Bridge Retrofit Rehabilitation Update*

\* Attachments

\*\* Stand-alone document included in the binder

\*\*\* To be sent under separate cover

## **ITEM 1: CHAIR'S REPORT**

No Attachments



## *Memorandum*

**TO:** Toll Bridge Program Oversight Committee (TBPOC)      **DATE:** January 26, 2011

**FR:** Tony Anziano, Toll Bridge Program Manager, Caltrans

**RE:** Agenda No. - 2a

TBPOC/ ABF/ TYLMN Discussion

Item- Self-Anchored Suspension (SAS) Superstructure Mitigation and  
Acceleration Update

---

**Recommendation:**

For Information Only

**Cost:**

N/A

**Schedule Impacts:**

N/A

**Discussion:**

A verbal update on the SAS contract will be provided at the February 3<sup>rd</sup> meeting.

**Attachment(s):**

## *Memorandum*

**TO:** Toll Bridge Program Oversight Committee (TBPOC)      **DATE:** January 26, 2010

**FR:** Andrew Fremier, Deputy Executive Director, BATA

**RE:** Agenda No. - 3a1  
Consent Calendar  
Item- TBPOC Meeting Minutes  
December 9, 2010 Meeting Minutes

---

**Recommendation:**

**APPROVAL**

**Cost:**

N/A

**Schedule Impacts:**

N/A

**Discussion:**

The Program Management Team has reviewed and requests TBPOC approval of the December 9, 2010 Meeting Minutes.

**Attachment(s):**

December 9, 2010 Meeting Minutes





# TOLL BRIDGE PROGRAM OVERSIGHT COMMITTEE

CALTRANS BAY AREA TOLL AUTHORITY CALIFORNIA TRANSPORTATION COMMISSION

## MEETING MINUTES

December 9, 2010, 10:00am – 1:00pm

Caltrans HQ, Director's Conference Room, 1120 N Street, Sacramento, CA

TBPOC – PMT pre-briefing, 10:00am – 11:00am

TBPOC meeting, 11:00am – 1:00pm

**Attendees:** TBPOC Members: Steve Heminger, Bimla Rhinehart, and Cindy McKim  
PMT Members: Tony Anziano, Andrew Fremier, and Dina Noel (for S. Maller)  
Participants: Ade Akinsanya, Michele DiFrancia, Mike Forner, Steven Hulsebus, Beatriz Lacson, Rick Land, Brian Maroney, Bart Ney, Mo Pazooki, Bijan Sartipi, Jon Tapping, Ken Terpstra, Chris Traina, and Jason Weinstein  
Part-time (ABF): Brian Petersen and Peter Vander Waart

Convened: 11:11 AM

Items		Action
<b>1. CHAIR'S REPORT</b>		
o N/A		
<b>2. TBPOC/ABF/ TYLMN Discussion</b>		
a. Self-Anchored Suspension (SAS) Superstructure Mitigation and Acceleration Update		
• T. Anziano reported that with respect to ZPMC, significant progress is being achieved given the focus on acceleration and, the teamwork between ZPMC staff and Team China has markedly improved.		
o B. Petersen gave a brief project update.		
➤ The tower lift shipment is arriving on December 13. Tower erection should be completed by December 23.		
➤ All roadway boxes have been shipped or are ready to be shipped, except for 13 and 14 which are forecast to be shipped in July 2011.		
➤ The use of a contractor- recommended wire to resolve a		

(continued)

Items	Action
<p>welding issue has been implemented. There may be schedule impacts of two to three weeks past July 11, 2011. B. Maroney is meeting with a panel of welding experts to ensure quality and maintain schedule.</p> <ul style="list-style-type: none"><li>○ TBPOC discussion included incentive impacts, meeting milestones, inspection codes, cultural/ political challenges, and holiday work schedules.</li><li>○ B. Petersen recommended a TBPOC meeting with ZPMC's Messrs. Kang and Li in China to reaffirm the schedule and ensure a productive path forward.</li></ul>	<ul style="list-style-type: none"><li>• Staff to re-schedule the TBPOC January 6, 2011 meeting after a potential TBPOC trip to China.</li></ul>
<p><b>3. CONSENT CALENDAR</b></p> <ul style="list-style-type: none"><li>a. TBPOC Meeting Minutes<ul style="list-style-type: none"><li>1) November 9, 2010 Meeting Minutes</li></ul></li><li>b. Draft Project Progress and Financial Update November 2010</li><li>c. Yerba Buena Island Transition Structures No. 1 Contract Change Order No. 33-S0 &amp; S1 (Modular Seismic Joints), not to exceed \$1,750,000.00</li></ul>	<ul style="list-style-type: none"><li>• The TBPOC <b>APPROVED</b> the Consent Calendar, as presented.</li></ul>
<p><b>4. SAN FRANCISCO-OAKLAND BAY BRIDGE (SFOBB) UPDATES</b></p> <ul style="list-style-type: none"><li>a. Yerba Buena Island Transition Structures (YBITS) No. 1<ul style="list-style-type: none"><li>1) Update<ul style="list-style-type: none"><li>• T. Anziano reported that MCM work on the YBITS No. 1 job is progressing well.</li></ul></li></ul></li><li>b. Oakland Touchdown (OTD) No. 2<ul style="list-style-type: none"><li>1) Detour and Staging Concept Update<ul style="list-style-type: none"><li>• B. Maroney gave a progress summary on the Temporary Oakland Touchdown Detour (TOTDD) work items. He presented, for TBPOC information, a preliminary cost</li></ul></li></ul></li></ul>	



(continued)

Items	Action
<p>estimate for TOTDD and pointed out that the capital outlay support (COS) estimate is dependent upon the schedule, yet to be developed. He projected an eastbound opening by Memorial Day 2011 and a westbound opening by year-end 2011.</p> <ul style="list-style-type: none"><li>○ Full bridge closure vs. lane closures was discussed. Mindful of the S-curve experience, S. Heminger, the Chair, requested a preliminary report on the operational impacts of such closures at the TBPOC February 2011 meeting.</li><li>• B. Maroney requested TBPOC approval to authorize an expenditure of not-to-exceed \$10M to keep the TOTDD work on track through January 2011.</li><li>○ B. Rhinehart indicated that such approval be contingent on delivery of a final scope, schedule and budget at the TBPOC February 2011 meeting.</li><li>○ C. McKim added as an approval condition that the expenditure be limited to utility relocation, right-of-way, Burma Road extension, permit, billboards.</li><li>• B. Ney presented the “Oakland Touchdown Detour Communications Plan Draft Outline” and described the two-pronged approach envisioned for the TOTDD. A strategy integrating successful aspects of previous bridge closures with new concepts to help deliver the complex messaging involved is under development.</li><li>○ The Chair requested a refinement of the draft Communications Plan by the TBPOC February 2011 meeting, as a third condition to the expenditure approval requested</li></ul>	<ul style="list-style-type: none"><li>• Staff to update the TBPOC on the operational impacts of TOTDD bridge/lane closure(s) at the TBPOC February 2011 meeting.</li><li>• Although presented as an informational item, the TBPOC <b>APPROVED</b> an expenditure request for an amount not to exceed \$10M, conditional upon the following being presented at the TBPOC February 2011 meeting: (1) scope, schedule and budget; (2) updated information on utility relocation, right-of-way, Burma Road extension, permit, billboards; and (3) refinement of the Communications Plan.</li></ul>

(continued)

Items	Action
<p>above.</p> <p>c. Yerba Buena Island Bicycle Access</p> <ul style="list-style-type: none"><li>• In response to the TBPOC's request for a conceptual proposal for bicycle-pedestrian access to Yerba Buena Island (YBI) at seismic safety opening (SSO), S. Hulsebus presented for TBPOC consideration a shoulder option.</li><li>○ Discussion topics included bicyclist emergency evacuation alternatives, elevator options, bicycle advocacy/CHP concerns, safety matters, and City of San Francisco future YBI plans.</li><li>○ It was the consensus that the bicycle-pedestrian access to YBI warrants further exploration.</li></ul>	<ul style="list-style-type: none"><li>• The Department to follow up with the City of San Francisco re planned improvements for bicyclists when they touch down at YBI, and report back to the TBPOC.</li><li>• The Department to further analyze the geometrics of the bike path at the eastbound on-ramp, and report back to the TBPOC.</li></ul>
<p><b>7 DUMBARTON/ANTIOCH BRIDGE SEISMIC RETROFIT UPDATES</b></p> <p>a. Update</p> <ul style="list-style-type: none"><li>• M. Forner provided updates on the Antioch and Dumbarton Bridge Seismic Retrofit projects.</li><li>○ <u>Antioch Bridge</u>: Progress in the field continues. The job is at 30% complete. The first isolation bearings have been installed</li><li>○ <u>Dumbarton Bridge</u>: Field work has begun and is going well.</li></ul> <p>b. Antioch Bridge Contract Change Order No. 6 (Bearings and Restrainers)</p> <ul style="list-style-type: none"><li>• M. Forner presented, for TBPOC approval, CCO No. 6 in an amount not to exceed \$3.7M, to facilitate a change in the installation sequence of the seismic isolation bearings and bearing restrainers in order to maintain structure stability.</li><li>○ Schedule impact is a 97-day delay, with an additional delay of two</li></ul>	<ul style="list-style-type: none"><li>• The TBPOC <b>APPROVED</b> CCO No. 6 in an amount not to exceed \$3.7M, as presented.</li></ul>

**(continued)**

Items	Action
months if the permit constraints related to temporary road removal is not mitigated.	
<p><b>8 OTHER BUSINESS</b></p> <ul style="list-style-type: none"><li>• At the Chair's request, B. Sartipi and M. Pazooki gave an update on the recent repair of the San Mateo-Hayward Bridge retrofit work.<ul style="list-style-type: none"><li>○ A crack discovered in the Y-shaped steel elements under the deck was fixed under an emergency contract. R. Land indicated that additional work needs to be done to avert increased maintenance in the future.</li><li>○ The question as to whether the work is a Toll Bridge Program or District 4 undertaking was discussed. Regardless of categorization (retrofit or rehab), fund allocation from BATA would still be required for the work.<ul style="list-style-type: none"><li>➤ It was suggested that the issue be evaluated and funding ramifications be looked into in time for a BATA funding request.</li></ul></li></ul></li></ul>	<ul style="list-style-type: none"><li>• The Department to look into funding ramifications, and give an update and cost/schedule presentation at the TBPOC January 2011 meeting.</li></ul>

Adjourned: 1:05 PM

***(continued)***

**TBPOC MEETING MINUTES**  
December 9, 2010, 10:00am – 1:00pm

**APPROVED BY:**

\_\_\_\_\_  
**STEVE HEMINGER**, TBPOC Chair  
Executive Director, Bay Area Toll Authority

\_\_\_\_\_  
Date

\_\_\_\_\_  
**BIMLA G. RHINEHART**, TBPOC Vice-Chair  
Executive Director, California Transportation Commission

\_\_\_\_\_  
Date

\_\_\_\_\_  
**CINDY McKIM**  
Director, California Department of Transportation

\_\_\_\_\_  
Date

**TO:** Toll Bridge Program Oversight Committee (TBPOC)      **DATE:** January 26, 2011

**FR:** Andrew Fremier, Deputy Director, BATA

**RE:** Agenda No. - 3b  
Consent Calendar  
Item- Final Project Progress and Financial Update December 2010

---

**Recommendation:**

For Information Only/ Approval Confirmation

**Cost:**

N/A

**Schedule Impacts:**

N/A

**Discussion:**

Included in this package is the final Project Progress and Financial Update December 2010. By meeting time, the report will have been reviewed and approved by the PMT through TBPOC-delegated authority, and released on January 11, 2011. TBPOC confirmation of this approval is requested.

**Attachment(s):**

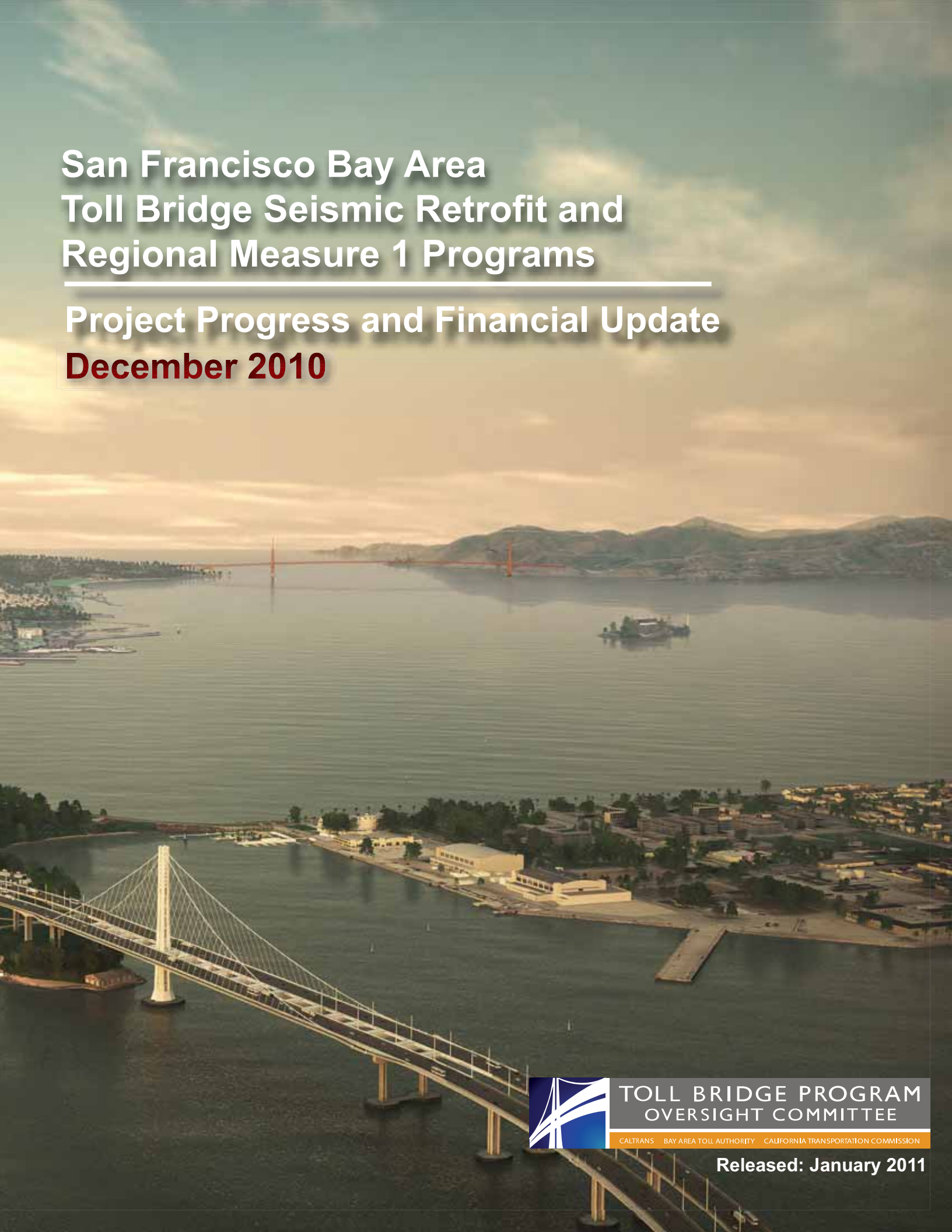
Final Project Progress and Financial Update December 2010 (see end of binder)



# San Francisco Bay Area Toll Bridge Seismic Retrofit and Regional Measure 1 Programs

---

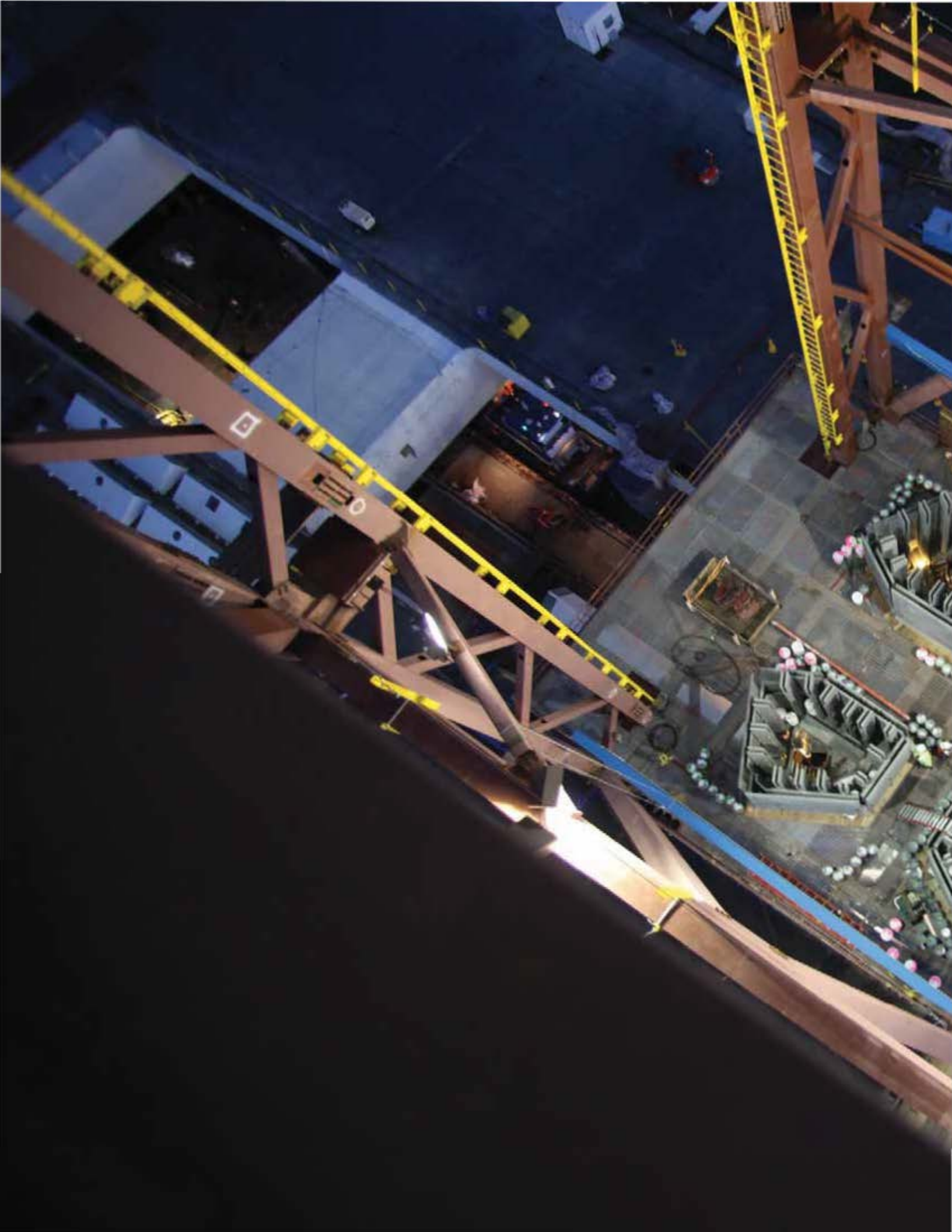
## Project Progress and Financial Update **December 2010**



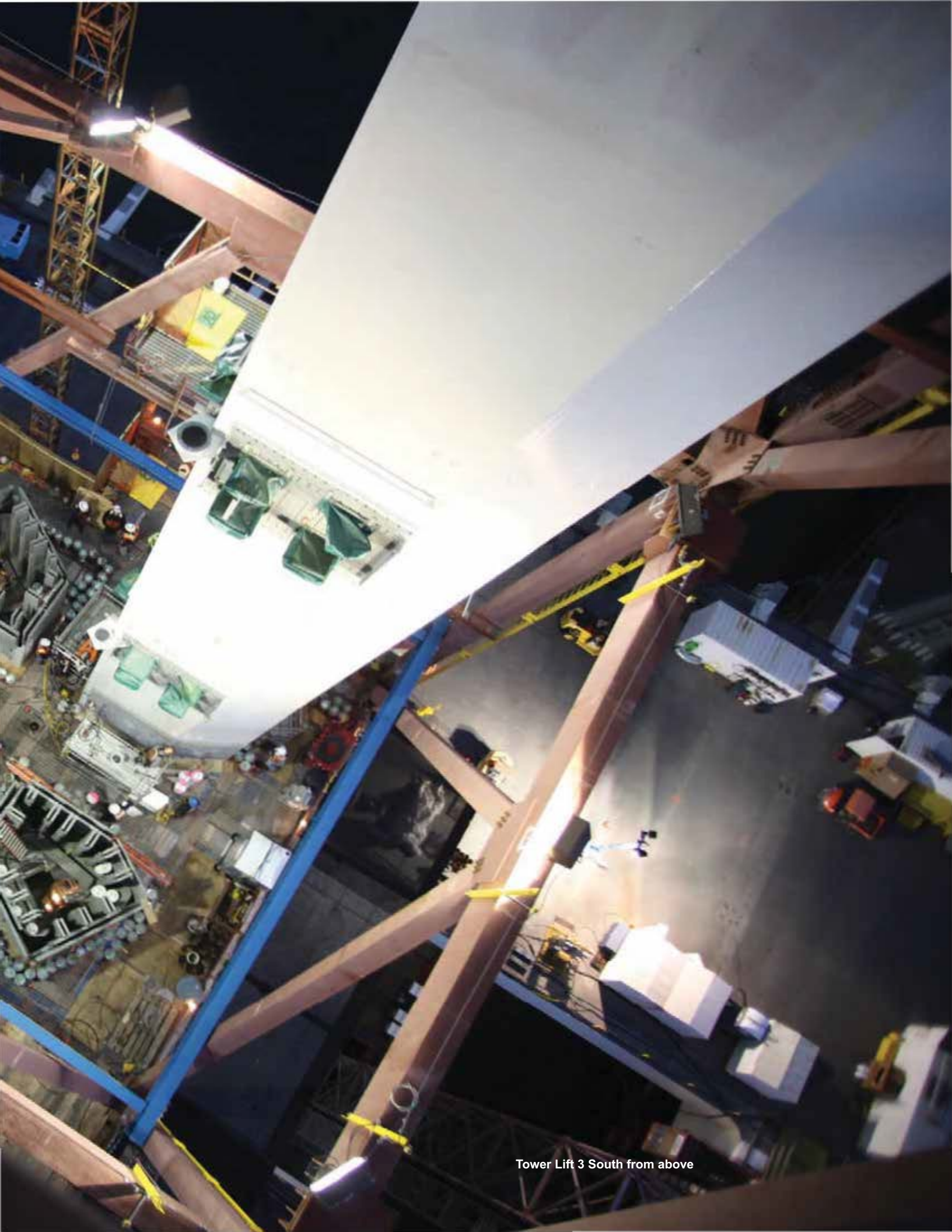
**TOLL BRIDGE PROGRAM  
OVERSIGHT COMMITTEE**

CALTRANS BAY AREA TOLL AUTHORITY CALIFORNIA TRANSPORTATION COMMISSION

**Released: January 2011**

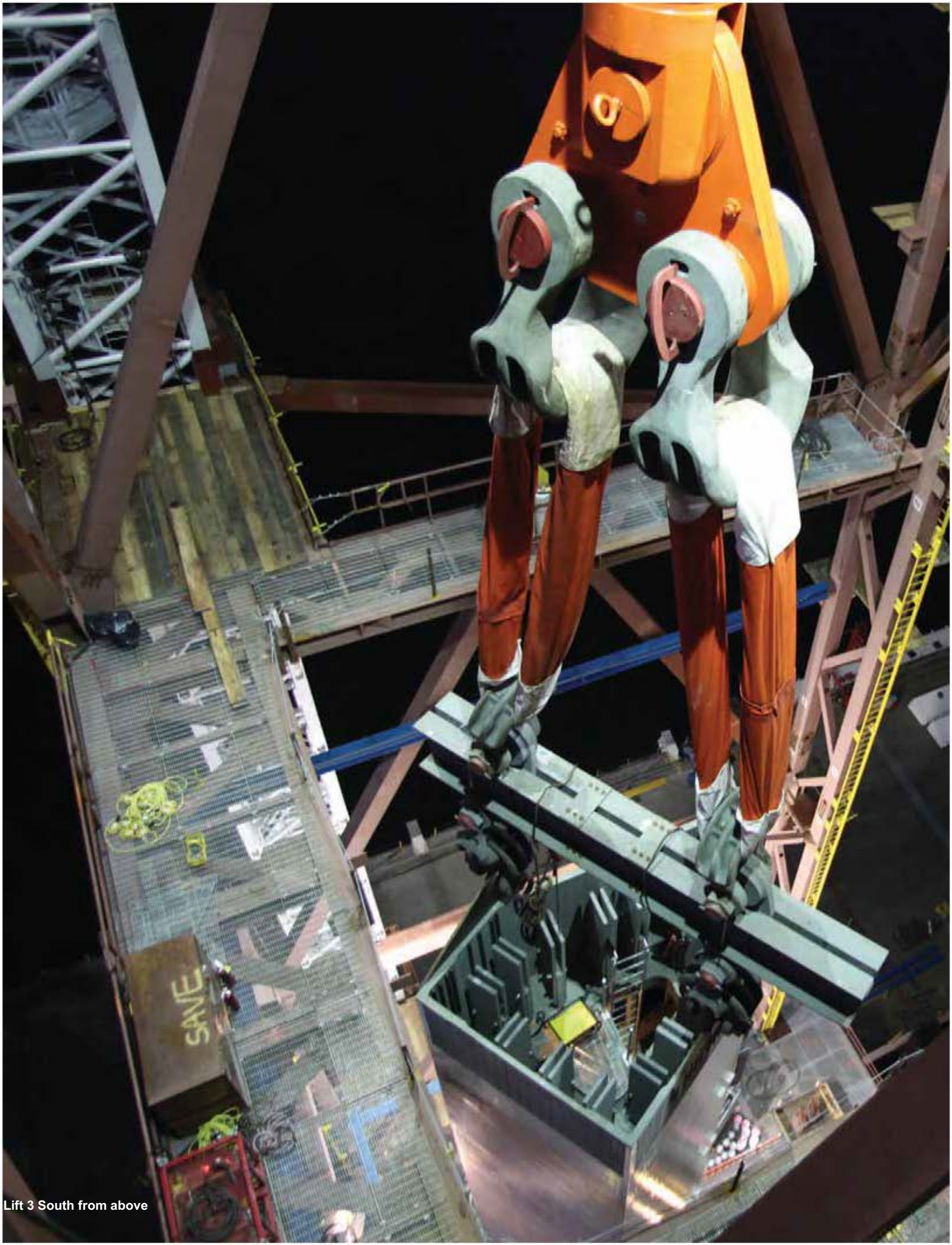






Tower Lift 3 South from above





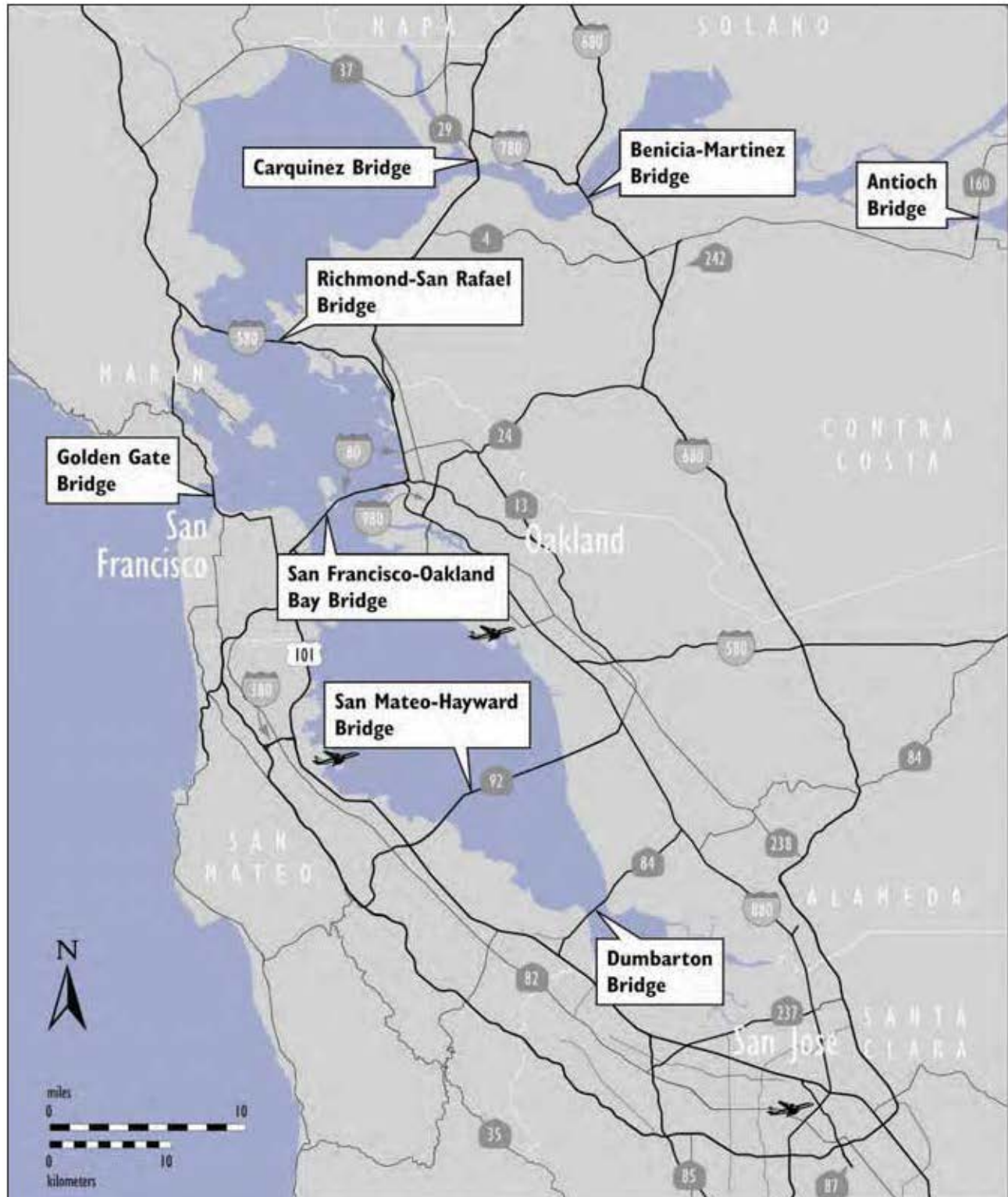
Lift 3 South from above

## Table of Contents

<b>Introduction</b>	<b>1</b>
Summary Of Major Project Highlights, Issues, And Actions	2
Toll Bridge Seismic Retrofit Program Cost Summary	6
Toll Bridge Seismic Retrofit Program Schedule Summary	7
Regional Measure 1 Program Cost Summary	8
Regional Measure 1 Program Schedule Summary	9
<b>Toll Bridge Seismic Retrofit Program (TBSRP)</b>	<b>11</b>
San Francisco-Oakland Bay Bridge Seismic Retrofit Strategy	12
San Francisco-Oakland Bay Bridge East Span Replacement Project Summary	15
Yerba Buena Island Transitions Structures	16
Self-Anchored Suspension (SAS) Bridge	18
SAS Construction Sequence	20
SAS Superstructure Fabrication Activities	22
SAS Superstructure Field Activities	25
SAS Superstructure Roadway and Tower Box Installation Activities	26
Skyway	28
Oakland Touchdown (OTD)	29
Other Contracts	30
Antioch Bridge Seismic Retrofit Project	32
Dumbarton Bridge Seismic Retrofit Project	34
Other Completed TBSRP Projects	36
<b>Regional Measure 1 Toll Bridge Program</b>	
Interstate 880/State Route 92 Interchange Reconstruction Project	40
Other Completed RM1 Projects	42
<b>Appendices</b>	<b>45</b>



## Map of Bay Area Toll Bridges



\* The Golden Gate Bridge is owned and operated by the Golden Gate Bridge, Highway, and Transportation District.

## Introduction

In July 2005, Assembly Bill (AB) 144 (Hancock) created the Toll Bridge Program Oversight Committee (TBPOC) to implement a project oversight and project control process for the Benicia-Martinez Bridge and State Toll Bridge Seismic Retrofit Program projects. The TBPOC consists of the Caltrans Director, the Bay Area Toll Authority (BATA) Executive Director and the Executive Director of the California Transportation Commission (CTC). The TBPOC's project oversight and control processes include, but are not limited to, reviewing bid specifications and documents, providing field staff to review ongoing costs, reviewing and approving significant change orders and claims in excess of \$1 million (as defined by the Committee) and preparing project reports. AB 144 identified the Toll Bridge Seismic Retrofit Program (TBSRP) and the new Benicia-Martinez Bridge Project as being under the direct oversight of the TBPOC. In January 2010, Assembly Bill (AB) 1175 (Torlakson) amended the TBSRP to include the Antioch and Dumbarton Bridges seismic retrofit projects. The current Toll Bridge Seismic Retrofit Program is as follows:

Toll Bridge Seismic Retrofit Projects	Seismic Safety Status
Dumbarton Bridge Seismic Retrofit	Construction
Antioch Bridge Seismic Retrofit	Construction
San Francisco-Oakland Bay Bridge East Span Replacement	Construction
San Francisco-Oakland Bay Bridge West Approach Replacement	Complete
San Francisco-Oakland Bay Bridge West Span Seismic Retrofit	Complete
San Mateo-Hayward Bridge Seismic Retrofit	Complete
Richmond-San Rafael Bridge Seismic Retrofit	Complete
1958 Carquinez Bridge Seismic Retrofit	Complete
1962 Benicia-Martinez Bridge Seismic Retrofit	Complete
San Diego-Coronado Bridge Seismic Retrofit	Complete
Vincent Thomas Bridge Seismic Retrofit	Complete

The New Benicia-Martinez Bridge is part of a larger program of toll-funded projects called the Regional Measure 1 (RM1) Toll Bridge Program under the responsibility of BATA and Caltrans. While the rest of the projects in the RM1 program are not directly under the responsibility of the TBPOC, BATA and Caltrans will continue to report on their progress as an informational item. The RM1 program includes:

Regional Measure 1 Projects	Open to Traffic Status
Interstate 880/State Route 92 Interchange Reconstruction	Construction
1962 Benicia-Martinez Bridge Reconstruction	Open
New Benicia-Martinez Bridge	Open
Richmond-San Rafael Bridge Deck Overlay Rehabilitation	Open
Richmond-San Rafael Bridge Trestle, Fender & Deck Joint Rehabilitation	Open
Westbound Carquinez Bridge Replacement	Open
San Mateo-Hayward Bridge Widening	Open
State Route 84 Bayfront Expressway Widening	Open
Richmond Parkway	Open

## SUMMARY OF MAJOR PROJECT HIGHLIGHTS, ISSUES, AND ACTIONS



View from below of Installed Roadway Boxes Eastbound (on left) and Westbound (on right) Looking West toward Yerba Buena Island



Pier W2 with the Newly Installed Bridge Connection Pipe Beams



Offloading Tower Lift 3

### Toll Bridge Seismic Retrofit Program Risk Management

A major element of the 2005 AB144, the law creating the TBPOC, was legislative direction to implement a more aggressive risk management program. Such a program has been implemented in stages over time to ensure development of a robust and comprehensive approach to risk management.

A comprehensive risk assessment is performed for each project in the program on a quarterly basis. Based upon those assessments, a forecast is developed using the average cost of risk. These forecasts can both increase and decrease as risks are identified, resolved or retired. Nonetheless, assurances have been made that the public is informed of the risks that have been identified and the possible expense they could necessitate.

As of the end of the third quarter of 2010, the 50 percent probable draw on Program Contingency is \$210 million. The potential draw ranges from about \$75 million to \$350 million. The current Program Contingency balance is sufficient to cover the cost of currently identified risks. Risk mitigation actions are continuously developed and implemented to reduce the potential draw on the Program Contingency.

### San Francisco-Oakland Bay Bridge (SFOBB) East Span Seismic Replacement Project SAS Superstructure Contract

The prime contractor constructing the Self-Anchored Suspension (SAS) Bridge from the completed Skyway to Yerba Buena Island is a joint venture of American Bridge/Fluor (ABF). Significant progress is being made both in the Bay Area and around the world. As of the end of November 2010, the first 18 of 28 steel roadway boxes and first two of five lifts of tower shafts have been installed. In December, two more roadway boxes and the third lifts of tower shafts are scheduled to arrive in the Bay Area and installed soon after.

These boxes, fabricated in Shanghai, China, join other bridge components that have been arriving from around the country and the world. All bridge components undergo a rigorous quality review by the fabricator, ABF, and Caltrans to ensure that only bridge components that have been built in accordance to the specifications will be shipped. The three remaining scheduled shipments of steel sections are scheduled through the summer of 2011.





San Francisco-Oakland Bay Bridge Detour Structure Completed over the Labor Day Weekend 2009

The completion of the last roadway sections at the east end of the new span are on the critical path and the east end fabrication has been delayed due to the complexity of the work. In September 2010, the TBPOC negotiated a change to the contract with the contractor to address these challenges, mitigate delays, and to accelerate the remaining work with a goal of opening the bridge to traffic by 2013. The change agreed to is a “seismic safety opening” of the bridge to traffic before non-essential systems are completed, like architectural lighting or removal of unneeded temporary support structures. In October 2010, ABF presented a schedule to Caltrans that meets the incentivized bridge-opening date in the early fall of 2013.

To fund the change and replenish contract contingency, the TBPOC approved an amendment to the budget for the SAS contract to be consistent with the \$2.0 billion Second Quarter 2010 forecast which resulted in an approved budget increase of \$293 million. This action will not require any change to the overall Toll Bridge Seismic Retrofit Program budget because there are adequate program contingency funds available to cover this budget change for the SAS contract.

## Yerba Buena Island Detour Contract

The contract was completed in October 2010.

## Yerba Buena Island Transition Structures #1 Contract

The YBITS#1 contract has been awarded to MCM Construction, the same contractor that completed the Oakland Touchdown (OTD) #1 contract. MCM mobilized in September 2010, and has had total access to the area since October 1, 2010.

MCM Construction, Inc. is currently constructing the access trestle for the construction of the substructure and superstructure. Two westbound footings and columns were completed in November 2010 and two additional westbound substructures are scheduled for completion in December. The westbound frame #2 temporary construction support structure is forecast to start in December 2010.



Yerba Buena Island Transition Substructures (footing and columns) Looking West

## SUMMARY OF MAJOR PROJECT HIGHLIGHTS, ISSUES, AND ACTIONS



Oakland Touchdown Bike Path and Hand Railing



Oakland Touchdown Service Platforms Installed



Dumbarton Bridge 48-inch Diameter Pipe Piles Arrive at Project Site

### Oakland Touchdown #1 Contract

The Oakland Touchdown (OTD) #1 contractor, MCM Construction completed the work on June 8, 2010. The contract constructed the westbound approach from the toll plaza to the Skyway structure and the portion of the eastbound approach that is not in conflict with the existing bridge structure.

### TBSRP Capital Outlay Support

The capital outlay support (COS) budget, originally established as a part of AB 144 in 2005, was based on a schedule that assumed bridge opening in 2012. After the SAS contract was rebid, interested contractors requested an additional year to be added to the schedule. To ensure a competitive bidding pool, the TBPOC changed the approved schedule to reflect bridge opening in 2013, but delayed increasing the COS budget to cover the project extension with the belief that an accelerated early completion was still possible and that COS costs could be contained. Since that time, early completion has not materialized and the TBPOC has subsequently approved COS budget increases to be funded from the COS reserves set aside within the original program contingency for project extensions or delays. Opportunities to economize and reduce costs in this area will continue to be pursued. However, additional COS is forecast to be needed from the program contingency.

### TBSRP Programmatic Risks

This category includes risks that are not yet scoped within existing contracts and/or that spread across multiple contracts. The interdependencies between all of the contracts in the program result in the potential for one contract's delay to impact the entire program that are accounted for in the net programmatic risks.





**Antioch Bridge - Piers Being Fitted for Construction Access Scaffolding**

## Antioch Bridge Seismic Retrofit

The Antioch Bridge serves the Delta region of the Bay Area. The current 1.8-mile-long steel plate girder bridge was opened in 1978 with one lane in each direction. The major retrofit measure for the bridge includes installing seismic isolation bearings at each of the 41 piers, strengthening piers 12 through 31 with steel cross-bracing between column bents and installing steel casings at all columns located at the Sherman Island approach slab bridge. See Project progress on page 32.



**Dumbarton Bridge - Reinforcing Steel Cage around 48-Inch Pipe**

## Dumbarton Bridge Seismic Retrofit

The current Dumbarton Bridge was opened to traffic in 1982 linking the cities of Newark in Alameda County and East Palo Alto in San Mateo County. The 1.6-mile long bridge has six lanes (three in each direction) and an eight-foot bicycle/pedestrian pathway. The bridge is a combination of reinforced concrete and steel girders that support a reinforced lightweight concrete roadway on reinforced concrete columns. The current retrofit strategy for the bridge includes superstructure and deck modifications and installation of isolation bearings. See project progress on page 34.



**92/880 NWCONN Bridge Construction in Progress**

## Regional Measure 1 Toll Bridge Program (RM1)

### Interstate 880/State Route 92 Interchange Reconstruction Project

Work is now ongoing on the remaining northern half of the separation structure. The project is forecast to be substantially completed in September 2011, pending weather or unforeseen construction delays.

## Toll Bridge Seismic Retrofit Program Cost Summary

	Contract Status	AB 144/SB 66 Budget (July 2005)	TBPOC Approved Changes	Current TBPOC Approved Budget (November 2010)	Cost to Date (November 2010)	Current Cost Forecast (November 2010)	Cost Variance	Cost Status
		a	b	c = a + b	d	e	f = e - c	
<b>SFOBB East Span Seismic Replacement</b>								
Capital Outlay Construction								
Skyway	Completed	1,293.0	(38.9)	1,254.1	1,236.9	1,254.1	-	●
SAS Marine Foundations	Completed	313.5	(32.6)	280.9	274.8	280.9	-	●
SAS Superstructure	Construction	1,753.7	293.1	2,046.8	1,348.7	2,097.4	50.6	●
YBI Detour	Completed	131.9	360.9	492.8	464.8	487.5	(5.3)	●
YBI Transition Structures (YBITS)		299.3	(93.0)	206.3	17.0	243.9	37.6	●
YBITS 1	Construction			144.0	17.0	169.5	25.5	●
YBITS 2	Design			59.0	-	71.1	12.1	●
YBITS Landscaping	Design			3.3	-	3.3	-	●
Oakland Touchdown (OTD)		283.8	4.2	288.0	209.6	280.2	(7.8)	●
OTD 1	Completed			212.0	201.7	203.4	(8.6)	●
OTD 2	Design			62.0	-	62.8	0.8	●
OTD Electrical Systems	Design			4.4	-	4.4	-	●
Submerged Electric Cable	Completed			9.6	7.9	9.6	-	●
Existing Bridge Demolition	Design	239.2	(0.1)	239.1	-	233.0	(6.1)	●
Stormwater Treatment Measures	Completed	15.0	3.3	18.3	16.7	18.3	-	●
Other Completed Contracts	Completed	90.4	(0.1)	90.3	89.9	90.4	0.1	●
Capital Outlay Support		959.3	203.0	1,162.3	896.5	1,282.5	120.2	●
Right-of-Way and Environmental Mitigation		72.4	-	72.4	51.3	72.4	-	●
Other Budgeted Capital		35.1	(3.3)	31.8	0.7	7.7	(24.1)	●
<b>Total SFOBB East Span Replacement</b>		<b>5,486.6</b>	<b>696.5</b>	<b>6,183.1</b>	<b>4,606.9</b>	<b>6,348.3</b>	<b>165.2</b>	
<b>Antioch Bridge Seismic Retrofit</b>								
Capital Outlay Construction and Mitigation	Construction		70.0	70.0	12.6	63.6	(6.4)	●
Capital Outlay Support			31.0	31.0	16.8	35.5	4.5	●
<b>Total Antioch Bridge Seismic Retrofit</b>		<b>-</b>	<b>101.0</b>	<b>101.0</b>	<b>29.4</b>	<b>99.1</b>	<b>(1.9)</b>	
<b>Dumbarton Bridge Seismic Retrofit</b>								
Capital Outlay Construction and Mitigation	Construction		92.7	92.7	4.2	92.7	-	●
Capital Outlay Support			56.0	56.0	23.0	56.0	-	●
<b>Total Dumbarton Bridge Seismic Retrofit</b>		<b>-</b>	<b>148.7</b>	<b>148.7</b>	<b>27.2</b>	<b>148.7</b>	<b>-</b>	
Other Program Projects		<b>2,268.4</b>	<b>(64.6)</b>	<b>2,203.8</b>	<b>2,158.9</b>	<b>2,191.7</b>	<b>(12.1)</b>	●
Miscellaneous Program Costs		<b>30.0</b>	<b>-</b>	<b>30.0</b>	<b>25.5</b>	<b>30.0</b>	<b>-</b>	●
Net Programmatic Risks <sup>1</sup>		<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>59.1</b>	<b>59.1</b>	●
Program Contingency		<b>900.0</b>	<b>(484.6)</b>	<b>415.4</b>	<b>-</b>	<b>205.1</b>	<b>(210.3)</b>	●
<b>Total Toll Bridge Seismic Retrofit Program <sup>2</sup></b>		<b>8,685.0</b>	<b>397.0</b>	<b>9,082.0</b>	<b>6,847.9</b>	<b>9,082.0</b>	<b>-</b>	●

● Within approved schedule and budget

● Identified potential project risks that could significantly impact approved schedules and budgets if not mitigated

● Known project impacts with forthcoming changes to approved schedules and budgets

## Toll Bridge Seismic Retrofit Program Schedule Summary

	AB144/SB 66 Project Completion Schedule Baseline (July 2005)	TBPOC Approved Changes (Months)	Current TBPOC Approved Completion Schedule (November 2010)	Current Completion Forecast (November 2010)	Schedule Variance (Months)	Schedule Status	Remarks/Notes
	g	h	i = g + h	j	k = j - i	l	
<b>SFOBB East Span Seismic Replacement</b>							
Contract Completion							
Skyway	Apr 2007	8	Dec 2007	Dec 2007	-	●	See Page 28
SAS Marine Foundations	Jun 2008	(5)	Jan 2008	Jan 2008	-	●	See Page 18
SAS Superstructure	Mar 2012	29	Aug 2014	Aug 2014	-	●	See Page 19
YBI Detour	Jul 2007	41	Dec 2010	Oct 2010	(2)	●	See Page 15
YBI Transition Structures (YBITS)	Nov 2013	12	Nov 2014	Mar 2015	4		See Page 16
YBITS 1			Sep 2013	Dec 2013	3	●	
YBITS 2			Nov 2014	Mar 2015	4	●	
YBITS Landscaping			TBD	TBD	-	●	
Oakland Touchdown	Nov 2013	12	Nov 2014	Mar 2015	4		See Page 29
OTD 1			Jun 2010	Jun 2010	-	●	
OTD 2			Nov 2014	Nov 2014	-	●	
OTD Electrical Systems			TBD	TBD	-	●	
Submerged Electric Cable			Jan 2008	Jan 2008	-	●	
Existing Bridge Demolition	Sep 2014	12	Sep 2015	Dec 2015	3	●	
Stormwater Treatment Measures	Mar 2008	-	Mar 2008	Mar 2008	-	●	
<b>SFOBB East Span Bridge Opening and Other Milestones</b>							
OTD Westbound Access			Aug 2009	Aug 2009	-	●	
YBI Detour Open			Sep 2009	Sep 2009	-	●	See Page 15
Westbound Open	Sep 2011	26	Dec 2013	Dec 2013	-	●	
Eastbound Open	Sep 2012	14	Dec 2013	Dec 2013	-	●	
<b>Antioch Bridge Seismic Retrofit</b>							
Contract Completion			Aug 2012	May 2012	(3)	●	See Page 32
<b>Dumbarton Bridge Seismic Retrofit</b>							
Contract Completion			Sep 2013	Sep 2013	-	●	See Page 34

<sup>1</sup> The Net Programmatic Risks of \$202.8 million comprises \$195.8 million program level risks and \$7 million risk reconciliation.

<sup>2</sup> Figures may not sum up to totals due to rounding effects.

## Regional Measure 1 Program Cost Summary

	Contract Status	BATA Baseline Budget (July 2005)	BATA Approved Changes	Current BATA Approved Budget (November 2010)	Cost to Date (November 2010)	Current Cost Forecast (November 2010)	Cost Variance	Cost Status
		a	b	c = a + b	d	e	f = e - c	
<b>Interstate 880/Route 92 Interchange Reconstruction</b>								
Capital Outlay Construction	Construction	94.8	66.2	161.0	109.1	161.0	-	●
Capital Outlay Support		28.8	34.6	63.4	55.4	63.4	-	●
Capital Outlay Right-of-Way		9.9	7.0	16.9	17.4	17.4	0.5	●
Project Reserve		0.3	3.4	3.7	-	3.2	(0.5)	
<b>Total I-880/SR-92 Interchange Reconstruction</b>		<b>133.8</b>	<b>111.2</b>	<b>245.0</b>	<b>181.9</b>	<b>245.0</b>	<b>-</b>	
Other Completed Program Projects		1,978.8	182.6	2,161.4	2,087.5	2,161.4	-	
<b>Total Regional Measure 1 Toll Bridge Program<sup>1</sup></b>		<b>2,112.6</b>	<b>293.8</b>	<b>2,406.4</b>	<b>2,269.4</b>	<b>2,406.4</b>	<b>-</b>	

- Within approved schedule and budget
  - Identified potential project risks that could significantly impact approved schedules and budgets if not mitigated
  - Known project impacts with forthcoming changes to approved schedules and budgets
- <sup>1</sup> Figures may not sum up to totals due to rounding effects.

## Regional Measure 1 Program Schedule Summary

	BATA Baseline Completion Schedule (July 2005)	BATA Approved Changes (Months)	Current BATA Approved Completion Schedule (November 2010)	Current Completion Forecast (November 2010)	Schedule Variance (Months)	Schedule Status	Remarks/Notes
	g	h	i = g + h	j	k = j - i	l	
<a href="#">Interstate 880/Route 92 Interchange Reconstruction</a>							
Contract Completion							
Interchange Reconstruction	Dec 2010	9	Jun 2011	Sep 2011	3	●	See Page 40







Overview of Installed Roadway Boxes and Skyway on the left and Existing Bridge on the right

# TOLL BRIDGE SEISMIC RETROFIT PROGRAM



## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### San Francisco-Oakland Bay Bridge Seismic Retrofit Strategy

When a 250-ton section of the upper deck of the East Span collapsed during the 7.1-magnitude Loma Prieta Earthquake in 1989, it was a wake-up call for the entire Bay Area. While the East Span quickly reopened within a month, critical questions lingered: How could the Bay Bridge—a vital regional lifeline structure—be strengthened to withstand the next major earthquake? Seismic experts from around the world determined that to make each separate element seismically safe on a bridge of this size, the work must be divided into numerous projects. Each project presents unique challenges. Yet there is one common challenge — the need to accommodate the more than 280,000 vehicles that cross the bridge each day.



West Approach Overview

#### West Approach Seismic Replacement Project

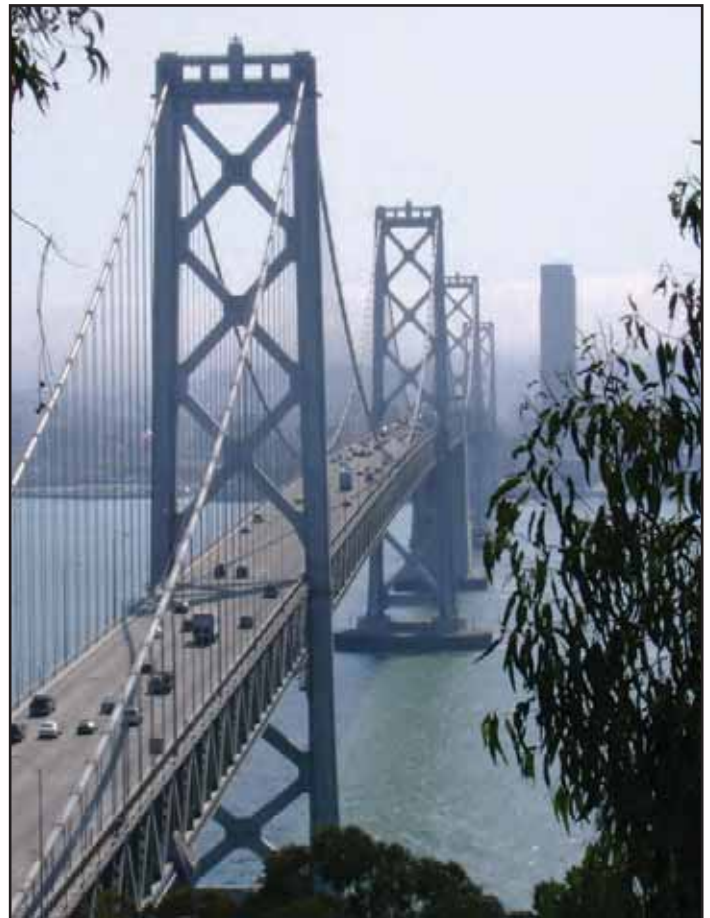
**Project Status: Completed 2009**

Seismic safety retrofit work on the West Approach in San Francisco—bounded on the west by 5th Street and on the east by the anchorage of the west span at Beale Street—involved completely removing and replacing this one-mile stretch of Interstate 80, as well as six on- and off-ramps within the confines of the West Approach's original footprint. This project was completed on April 8, 2009.

#### West Span Seismic Retrofit Project

**Project Status: Completed 2004**

The West Span lies between Yerba Buena Island and San Francisco and is made up of two complete suspension spans connected at a center anchorage. Retrofit work included adding massive amounts of steel and concrete to strengthen the entire West Span, along with new seismic shock absorbers and bracing.



San Francisco-Oakland Bay Bridge West Span



## East Span Seismic Replacement Project

Rather than a seismic retrofit, the two-mile long East Span is being completely rebuilt. When completed, the new East Span will consist of several different sections, but will appear as a single streamlined span. The eastbound and westbound lanes of the East Span will no longer include upper and lower decks. The lanes will instead be parallel, providing motorists with expansive views of the bay. These views will also be enjoyed by bicyclists and pedestrians, thanks to a new path on the south side of the bridge that will extend all the way to Yerba Buena Island. The new span will be aligned north of the existing bridge to allow traffic to continue to flow on the existing bridge as crews build the new span.

The new span will feature the world's longest Self-Anchored Suspension (SAS) bridge that will be connected to an elegant roadway supported by piers (Skyway), which will gradually slope down toward the Oakland shoreline (Oakland Touchdown). A new transition structure on Yerba Buena Island (YBI) will connect the SAS to the YBI Tunnel and will transition the East Span's side-by-side traffic to the upper and lower decks of the tunnel and West Span.

When construction of the new East Span is complete and vehicles have been safely rerouted to it, the original East Span will be demolished.



Architectural Rendering of the New East Span of the San Francisco-Oakland Bay Bridge



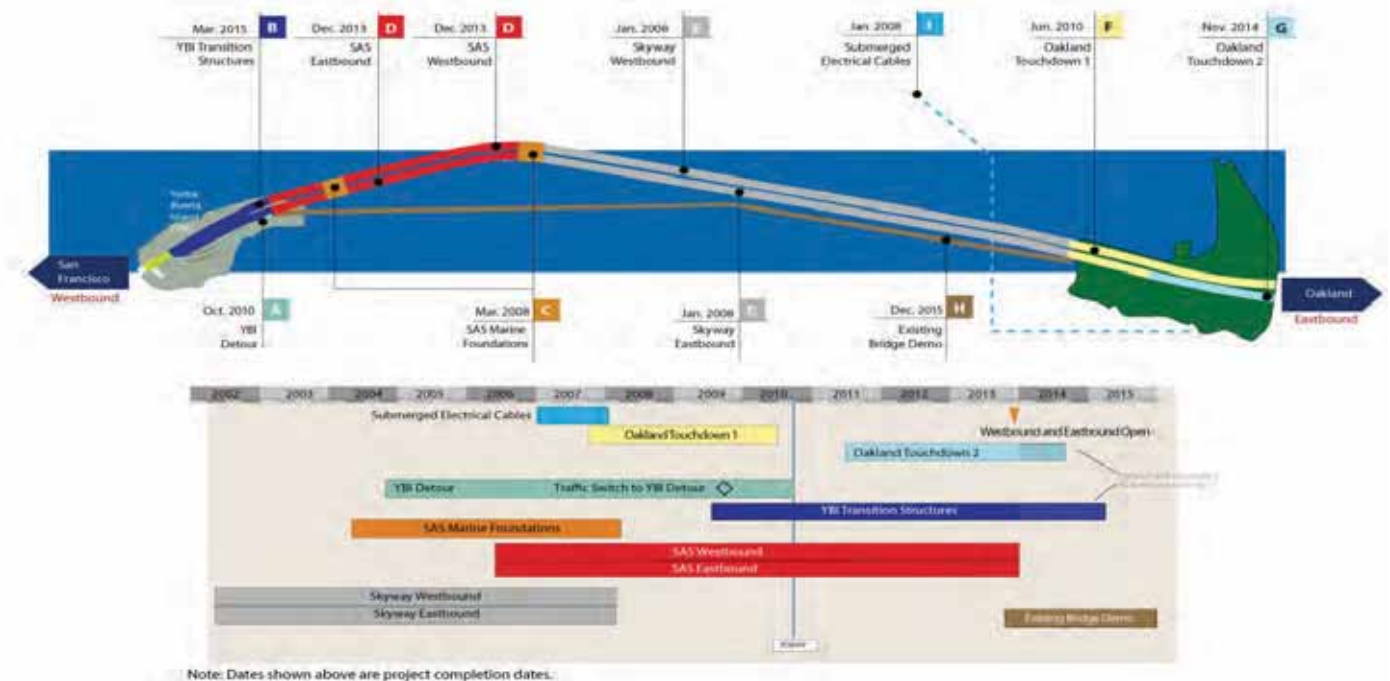
## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### San Francisco-Oakland Bay Bridge East Span Replacement Project Summary

The new East Span bridge can be split into four major components—the Skyway and the Self-Anchored Suspension bridge in the middle and the Yerba Buena Island Transition Structures and Oakland Touchdown approaches at either end. Each component is being constructed by one to three separate contracts that have been sequenced together.

Highlighted below are the major East Span contracts and their schedules. The letter designation before each contract corresponds to contract descriptions in the report.

#### SFOBB East Span Work Sequence





## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### San Francisco-Oakland Bay Bridge East Span Replacement Project Yerba Buena Island Detour (YBID)

As with all of the Bay Bridge's seismic retrofit projects, crews must build the Yerba Buena Island Transition Structures (YBITS) without disrupting traffic. To accomplish this task, YBID eastbound and westbound traffic was shifted off the existing roadway and onto a temporary detour on Labor Day weekend 2009. Drivers will use this detour, just south of the original roadway, until traffic is moved onto the new East Span.

#### A YBID Contract

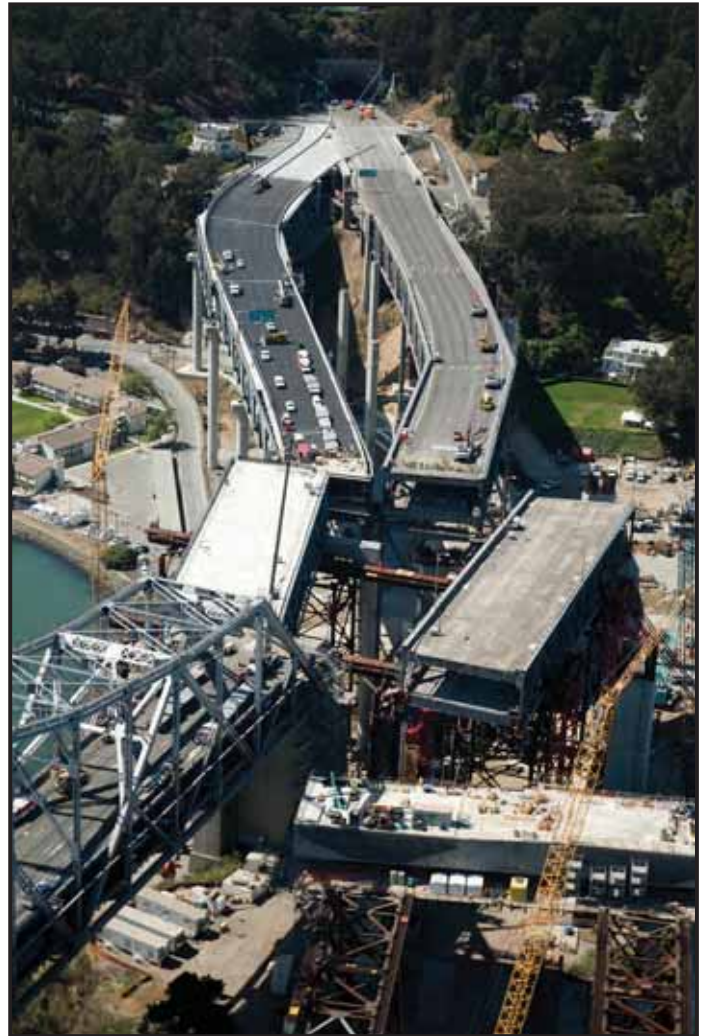
Contractor: C.C. Myers, Inc

Approved Capital Outlay Budget: \$492.8 M

Status: Completed October 2010

This contract was originally awarded in early 2004 to construct the detour structure for the planned 2006 opening of the new East Span. Due to the re-advertisement of the SAS superstructure contract in 2005 because of a lack of funding at the time, the bridge opening was rescheduled to 2013. To better integrate the contract into the current East Span schedule and to improve seismic safety and mitigate future construction risks, the TBPOC has approved a number of changes to the contract, including adding the deck replacement work near the tunnel that was rolled into place over Labor Day weekend 2007, advancing future transition structure foundation work and making design enhancements to the temporary detour structure. These changes have increased the budget and forecast for the contract to cover the revised project scope and potential project risks.

**Status:** Work is complete.



YBI East Tie-In Rolled In Labor Day 2009



West Tie-In Phase #1 Rolled in on Labor Day 2007

## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### San Francisco-Oakland Bay Bridge East Span Replacement Project Yerba Buena Island Transition Structures (YBITS)

The new Yerba Buena Island Transition Structures (YBITS) will connect the new SAS bridge span to the existing Yerba Buena Island Tunnel, transitioning the new side-by-side roadway decks to the upper and lower decks of the tunnel. The new structures will be cast-in-place reinforced concrete structures that will look very similar to the already constructed Skyway structures. While some YBITS foundations and columns have been advanced by the YBID contract, the remaining work will be completed under three separate YBITS contracts.

#### **B** YBITS #1 Contract

Contractor: MCM Construction, Inc.

Approved Capital Outlay Budget: \$144.0 M

Status: 16% Complete as of November 2010



YBITS #1' Access Trestle and Footing Shoring

The YBITS #1 contract will construct the mainline roadway structures from the SAS bridge to the YBI tunnel. On February 4, 2010, Caltrans awarded the YBITS #1 Contract to MCM Construction, Inc.

**Status:** The contractor, MCM Construction, Inc., continues to work on the access trestle and eastbound and westbound footings and columns. Westbound frame #2 falsework is scheduled to start in December 2010.



Rendering of Overview of Future Yerba Buena Island Transition Structures in Progress (top) with Completed Detour Viaduct (bottom)





## YBITS #2 Contract

Contractor: TBD

Approved Capital Outlay Budget: \$59.0 M

Status: **In Design**

The YBITS #2 contract will demolish the detour viaduct after all traffic is shifted to the new bridge and will construct a new eastbound on-ramp to the bridge in its place. The new ramp will also provide the final link for bicycle/pedestrian access off the SAS bridge onto Yerba Buena Island.

## YBITS Landscaping Contract

Contractor: TBD

Approved Capital Outlay Budget \$3.3M

Status: **In Design**

Upon completion of the YBITS work, a follow-on landscaping contract will be executed to re-plant and landscape the area.

## Yerba Buena Island Transition Structures Advanced Work

Due to the re-advertisement of the SAS superstructure contract in 2005, it became necessary to temporarily suspend the detour contract and make design changes to the viaduct. To make more effective use of the extended contract duration and to reduce overall project schedule and construction risks, the TBPOC approved the advancement of foundation and column work from the Yerba Buena Island Transition Structures contract.

**Status:** The YBID contractor completed the YBITS advanced substructure work in October 2010.



Yerba Buena Island Transition Structures #1 Access Trestle and Excavation of W8L Footing

## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### San Francisco-Oakland Bay Bridge East Span Replacement Project Self-Anchored Suspension (SAS) Bridge

If one single element bestows world class status on the new Bay Bridge East Span, it is the Self-Anchored Suspension (SAS) bridge. This engineering marvel will be the world's largest SAS span at 2,047 feet in length, as well as the first bridge of its kind built with a single tower.

The SAS was separated into three separate contracts— construction of the land-based foundations and columns at Pier W2; construction of the marine-based foundations and columns at Piers T1 and E2; and construction of the SAS steel superstructure, including the tower, roadway, and cabling. Construction of the foundations at Pier W2 and at Piers T1 and E2 was completed in 2004 and 2007, respectively.



SAS Lifting Roadway Box 9 Westbound

### SAS Land Foundation Contract

Contractor: West Bay Builders, Inc.

Approved Capital Outlay Budget: \$26.4 M

Status: Completed October 2004

The twin W2 columns on Yerba Buena Island provide essential support for the western end of the SAS bridge, where the single main cable for the suspension span will extend down from the tower and wrap around and under the western end of the roadway deck. Each of these huge columns required massive amounts of concrete and steel and are anchored 80 feet into the island's solid bedrock.

### C SAS Marine Foundations Contract

Contractor: Kiewit/FCI/Manson, Joint Venture

Approved Capital Outlay Budget: \$280.9 M

Status: Completed January 2008

Construction of the piers at E2 and T1 required significant on-water resources to drive the foundation support piles down, not only to bedrock, but also through the bay water and mud (see rendering on facing page).

The T1 foundation piles extend 196 feet below the waterline and are anchored into bedrock with heavily reinforced concrete rock sockets that are drilled into the rock. Driven nearly 340 feet deep, the steel and concrete E2 foundation piles were driven 100 feet deeper than the deepest timber piles of the existing east span in order to get through the bay mud and reach solid bedrock.



## D SAS Superstructure Contract

Contractor: American Bridge/Fluor Enterprises, Joint Venture

Approved Capital Outlay Budget: \$2.05 B

Status: 66% Complete as of November 2010

The SAS bridge is not just another suspension bridge. Rising 525 feet above mean sea level and embedded in rock, the single-tower SAS span is designed to withstand a massive earthquake. Traditional main cable suspension bridges have twin cables with smaller suspender cables connected to them. These cables hold up the roadbed and are anchored to the east end of the roadway boxes. While there will appear to be two main cables on the SAS, there will actually only be one. This single cable will be anchored within the eastern end of the roadway, carried over the tower and then wrapped around the two side-by-side decks at the western end.

The single-steel tower will be made up of four separate legs connected by shear link beams which function much like a fuse in an electrical circuit. These beams will absorb most of the impact from an earthquake, preventing damage to the tower legs.

The next several pages highlight the construction sequence of the SAS and are followed by detailed updates on specific construction activities.



Architectural Rendering of New Self-Anchored Suspension Span and Skyway





## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### *Self-Anchored Suspension (SAS) Construction Sequence*

#### STEP 1 - CONSTRUCT TEMPORARY SUPPORT STRUCTURES

Temporary support structures will need to be erected from the Skyway to Yerba Buena Island to support the new SAS bridge during construction.

**Status:** Foundations and temporary support structures were completed in mid-September 2010.

#### STEP 2 - INSTALL ROADWAYS

The roadway boxes are being lifted into place by using the shear-leg crane barge. The boxes are being bolted and welded together atop the temporary support trusses to form two continuous parallel steel roadway boxes.

**Status:** Roadway boxes 9 eastbound and westbound were lifted into position in November, 2010. Twelve crossbeams have been erected between the roadway boxes. Crossbeams 13 and 14 are forecast for installation in December 2010. Roadway boxes 10 east and west shipped on November 15, 2010 and are expected to arrive at Pier 7 in Oakland on December 13, 2010.



#### STEP 3 - INSTALL TOWER

Each of the four legs of the tower will be erected in five separate lifts. The tower lifts will be installed using a temporary erection tower and lifting jacks.

**Status:** The third tower shafts will be shipped on November 15, 2010 and are expected to arrive at Pier 7 in Oakland on December 13, 2010, and are forecast for installation in late December 2010.



#### STEP 4 - MAIN CABLE AND SUSPENDER INSTALLATION

The main cable will be pulled from the east end of the SAS bridge, over the tower, and wrapped around Pier W2 and again back over the tower and to the west end of the SAS bridge deck. Suspenders cables will be added to lift the roadway decks off the temporary support structure.

**Status:** Cable installation is pending the erection of the tower completion of roadway spans. All cables have been fabricated, shipped and stored in the warehouse at Pier 7 in Oakland.



#### STEP 5 - WESTBOUND AND EASTBOUND SEISMIC SAFETY OPENING

The new bridge will now open simultaneously in both the westbound and eastbound directions.

**Status:** Westbound and eastbound opening is forecast for December 2013.



## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### *Self-Anchored Suspension (SAS) Superstructure Fabrication Activities*

#### **Roadway and Tower Segments**

Like giant three-dimensional jigsaw puzzles, the roadway and tower lifts of the SAS bridge are hollow steel shells that are internally strengthened and stiffened by a highly engineered network of welded steel ribs and diaphragms. The use of steel in this manner allows for a flexible yet relatively light and strong structure able to withstand the massive loads placed on the bridge during seismic events.

On the critical path to completing the bridge are the fabrication of the last four roadway boxes (segments 13 and 14 east and west). Delays to beginning the fabrication of these boxes precluded the westbound opening of the bridge in 2012. The TBPOC now forecasts opening the bridge in both directions in December 2013.

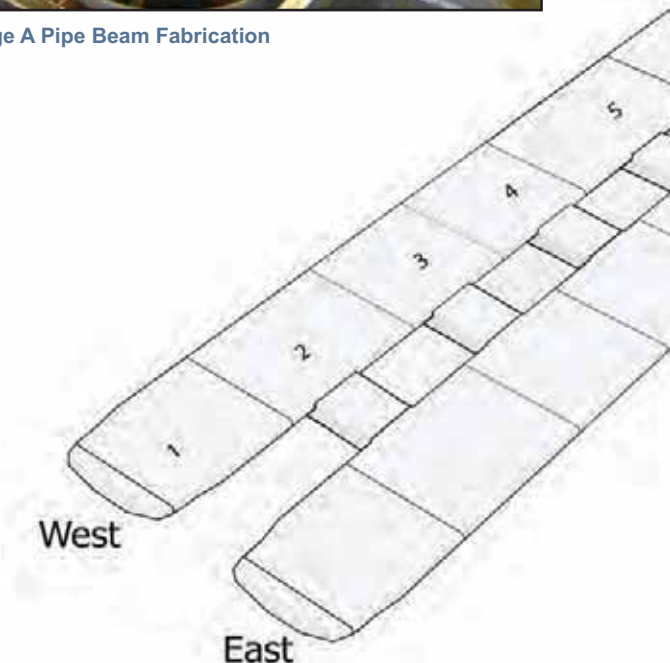
All components undergo a rigorous quality review by ZPMC, ABF, and Caltrans to ensure that only bridge components that have been built according to contract specifications will be shipped.

**Roadway Box Fabrication Status:** As shown in the diagram to the right, roadway boxes 1 through 9 east and west have been completed and shipped to the Bay Area. Roadway boxes 9 east and west were lifted into position in November 2010. Roadway boxes 10 east and west shipped on November 15, 2010 and are expected to arrive at Pier 7 in Oakland on December 13, 2010. Roadway box 11 is forecast to ship in January 2011. Fabrication of sub-assemblies for roadway boxes 12, 13 and 14 started in March 2010 and are forecast to be fabricated and shipped by July 2011.

**Tower Fabrication Status:** Each of the four legs of the tower is composed of five separate lifts. The lifts get progressively shorter and lighter as they progress up the tower. The first two lifts were completed in October, 2010. The third lift of the tower shipped on November 15, 2010 and is expected to arrive in Oakland on December 13, 2010. All remaining tower sections are scheduled for shipment in January 2011.



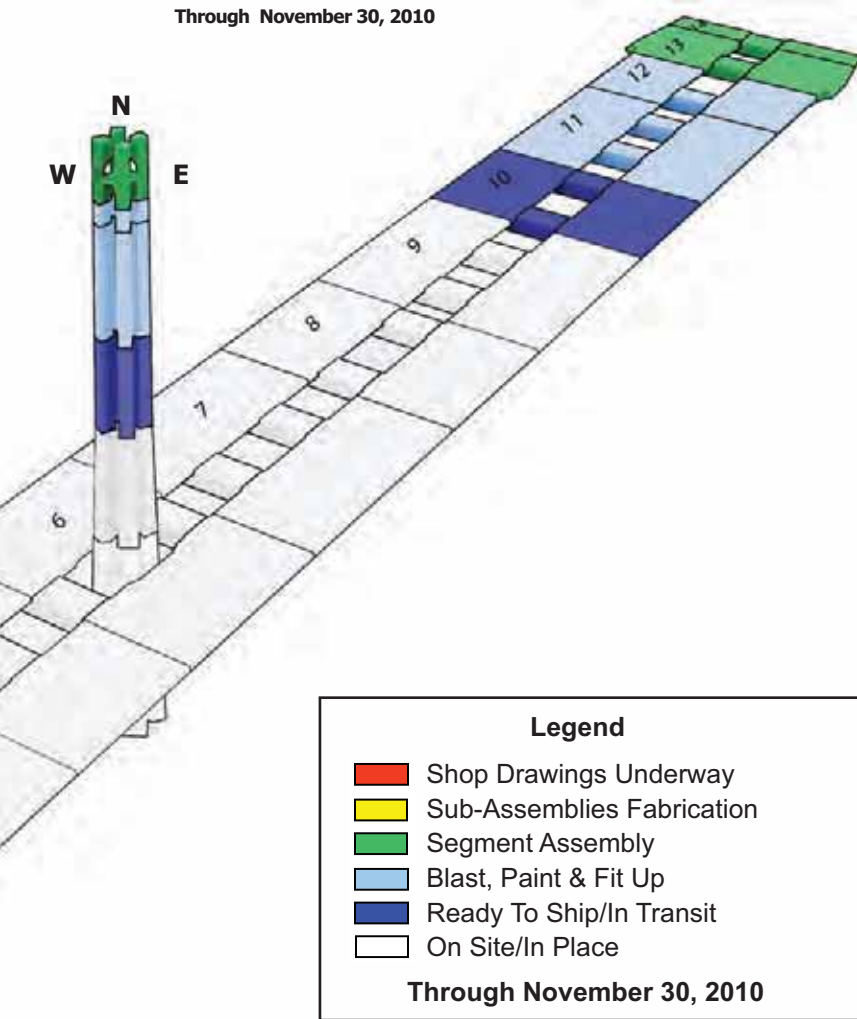
SAS Hinge A Pipe Beam Fabrication



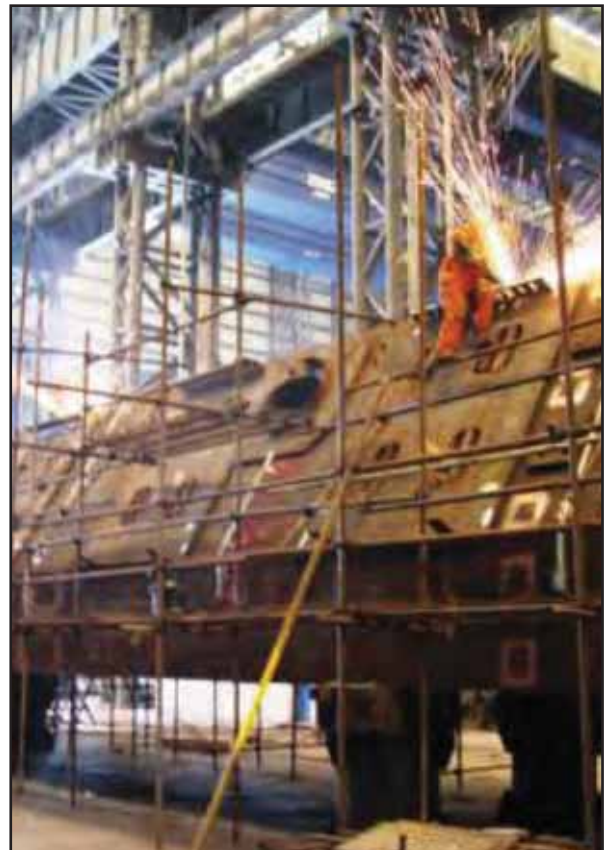


## Fabrication Progress Diagram

Through November 30, 2010



SAS Roadway Box Segments 13



SAS Tower Lift 4 Shafts



SAS Roadway Box Segments 11 and 12



## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### *Self-Anchored Suspension (SAS) Superstructure Fabrication Activities (cont.)*

#### ***Cables and Suspenders***

One continuous main cable will be used to support the roadway deck of the SAS bridge. Anchored into the eastern end of the bridge, the main cable will be anchored with the roadway box at the east end of the SAS near Pier E1, extend over the main tower at T1, loop around the western end of the roadway decks at Pier W2, and then travel back over the main tower to the western end of the roadway box. The main cable will be made up of bundles of individual wire strands. Supporting the roadway decks to the main cable will be a number of smaller suspender cables. The main cable will be fabricated in China and the suspender cables in Missouri, USA.

**Status:** All tower cables have been fabricated and delivered to the job site and stored at Pier 7 warehouse in Oakland. All cable bands are forecast to be completed and shipped to the job site by January 2011 and the suspender ropes are forecast to be completed in December 2010. The cable band bolts are undergoing testing in Germany.

#### ***Saddles, Bearings, Hinges, and Other Bridge Components***

The mounts on which the main cable and suspender ropes will sit are made from solid steel castings. Castings for the main cable saddles are being made by Japan Steel Works, while the cable bands and brackets are being made by Goodwin Steel in the United Kingdom.

The bridge bearings and hinges that support, connect, and transfer loads from the self-anchored suspension (SAS) span to the adjoining sections of the new east span are being fabricated in a number of locations. Work on the bearings is being performed in Pennsylvania, USA and Hochang, South Korea, while hinge pipe beams are being fabricated in Oregon, USA.

**Status:** The west and east deviation cable saddles and hinges have been fabricated and installed for W2 cap beam.



Cable Bands Ready for Painting



Bronze Kettle for Casting Spherical Bearing Components



Pouring of Casting



## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### *Self-Anchored Suspension (SAS) Superstructure Field Activities*



Shear-Leg Crane Barge

#### **Shear-Leg Crane Barge**

The massive shear-leg barge crane that is helping to build the SAS superstructure arrived in the San Francisco Bay on March 12, 2009 after a trans-Pacific voyage.

The crane and barge are separate units operating as a single entity named the “Left Coast Lifter.” The 400-by-100-foot barge is a U.S.-flagged vessel that was custom built in Portland, Oregon by U.S. Barge, LLC and outfitted with the crane by Shanghai Zhenhua Heavy Industry Co. Ltd. (ZPMC) at a facility near Shanghai, China. The crane’s boom weighs 992 tons and is 328 feet long. The crane can lift up to 1,873 tons, including the deck and tower boxes for the SAS.

**Status:** The shear-leg crane barge arrived at the job site March 2009. The crane has off-loaded and placed all temporary support structures and SAS roadway boxes and crossbeams.



Shear-Leg Crane Barge Lifting Roadway Box 9W

#### **Temporary Support Structures**

To erect the roadway decks and tower of the bridge, temporary support structures were first put in place. Almost a bridge in itself, the temporary support structures stretch from the end of the completed Skyway back to Yerba Buena Island. For the tower, a strand jack system is being built into the tower’s temporary frame to elevate the upper sections of the tower into place. These temporary supports are being fabricated in the Bay Area, as well as in Oregon and in China at ZPMC.

**Status:** The temporary support structures are complete.

#### **Cap Beams**

Construction of the massive steel-reinforced concrete cap beams that link the columns at Piers W2 and E2 was left to the SAS superstructure contractor and represents the only concrete portions of work on that contract. The east and west ends of the SAS roadway will rest on the cap beams and the main cable will wrap around Pier W2, while anchoring into the east end of the SAS deck sections near E2.

**Status:** Completed March 2009



E2 Cap Beam and the end of the Skyway

## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### *Self-Anchored Suspension (SAS) Superstructure Installation Activities*

Upon arrival in Oakland, the steel roadway and tower sections are off-loaded directly from the transport ship onto barges to await installation atop the temporary support structures. Steel roadway boxes will be installed from west to east. Due to the shallow waters near Yerba Buena Island, the eastbound lanes on the south side of the new bridge will be installed first, then to be followed by the westbound lanes. In total, there are 28 roadway boxes (14 in each direction) that range from 560 to 1660 tons and from 80 to 230 feet long.

The tower comprises four legs, each made up of four tower lifts that make up the majority of the height of the tower, the tower grillage, and finally the tower head.

**Status:** Eighteen of 28 roadway boxes (1 through 9 east and west) have been placed on top of temporary support structures to form a continuous roadway. Tower lift 2 shafts have been lifted into place and are being welded and bolted together. Roadway boxes 10 east and west and Tower lift 3 shafts shipped on November 15, 2010 and are expected to arrive at Pier 7 in Oakland on December 13, 2010. All remaining tower sections are scheduled for shipment in January 2011.







Overview of Progress of Roadway Boxes and Tower Lifts



Overview of Installation Progress of Roadway Box 9 Eastbound



## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### San Francisco-Oakland Bay Bridge East Span Replacement Project Skyway

The Skyway, which comprises much of the new East Span, will drastically change the appearance of the Bay Bridge. Replacing the gray steel that currently cages drivers, a graceful, elevated roadway supported by piers will provide sweeping views of the bay.

#### **E Skyway Contract**

Contractor: Kiewit/FCI/Manson, Joint Venture

Approved Capital Outlay Budget: \$1.25 B

Status: Completed March 2008

Extending for more than a mile across Oakland mudflats, the Skyway is the longest section of the East Span. It sits between the new Self-Anchored Suspension (SAS) span and the Oakland Touchdown. In addition to incorporating the latest seismic-safety technology, the side-by-side roadway decks of the Skyway feature shoulders and lane widths built to modern standards.

The Skyway's decks are composed of 452 pre-cast concrete segments (standing three stories high), containing approximately 200 million pounds of structural steel, 120 million pounds of reinforcing steel, 200 thousand linear feet of piling and about 450 thousand cubic yards of concrete. These are the largest segments of their kind ever cast and were lifted into place by custom-made winches.

The Skyway marine foundation consists of 160 hollow steel pipe piles measuring eight feet in diameter and dispersed among 14 sets of piers. The 365-ton piles were driven more than 300 feet into the deep bay mud. The new East Span piles were battered or driven in at an angle, rather than vertically, to obtain maximum strength and resistance.

Designed specifically to move during a major earthquake, the Skyway features several state-of-the-art seismic safety innovations, including 60-foot-long hinge pipe beams. These beams will allow deck segments on the Skyway to move, enabling the deck to withstand greater motion and to absorb more earthquake energy.



Overview of the Skyway Looking West Toward Yerba Buena Island



## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### San Francisco-Oakland Bay Bridge East Span Replacement Project Oakland Touchdown

When completed, the Oakland Touchdown (OTD) structures will connect Interstate 80 in Oakland to the new side-by-side decks of the new East Span. For westbound drivers, the OTD will be their introduction to the graceful new East Span. For eastbound drivers from San Francisco, this section of the bridge will carry them from the Skyway to the East Bay, offering unobstructed views of the Oakland hills.

The OTD will be constructed through two contracts. The first contract will build the new westbound lanes, as well as part of the eastbound lanes. The second contract to complete the eastbound lanes cannot fully begin until westbound traffic is shifted onto the new bridge. This enables a portion of the upper deck of the existing bridge to be demolished allowing for a smooth transition for the new eastbound lanes in Oakland.

#### **F** Oakland Touchdown #1 Contract

**Contractor:** MCM Construction, Inc.  
**Approved Capital Outlay Budget:** \$212.0 M  
**Status:** Completed June 2010

The OTD #1 contract constructs the entire 1,000-foot-long westbound approach from the toll plaza to the Skyway. When completed, the westbound approach structure will provide direct access to the westbound Skyway. In the eastbound direction, the contract will construct a portion of the eastbound structure and all of the eastbound foundations that are not in conflict with the existing bridge.

**Status:** MCM Construction, Inc. completed OTD #1 westbound and eastbound phase 1 on June 8, 2010.

#### **G** Oakland Touchdown #2 Contract

**Contractor:** TBD  
**Approved Capital Outlay Budget:** \$62.0 M  
**Status:** In Design

The OTD #2 contract will complete the eastbound approach structure from the end of the Skyway to Oakland. This extra work is critical to the eastbound opening of the new bridge, by December 2013.

**Status:** The TBPOC is evaluating options to expedite construction of portions of OTD #2 in order to have both east and west bound approaches ready for traffic as soon as the SAS is ready for traffic. The remaining portions of OTD #2 are in design.



Aerial View of Oakland Touchdown Looking West



## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### San Francisco-Oakland Bay Bridge East Span Replacement Project Other Contracts

A number of contracts needed to relocate utilities, clear areas of archeological artifacts, and prepare areas for future work have already been completed. The last major contract will be the eventual demolition and removal of the existing bridge, which by that time will have served the Bay Area for nearly 80 years. Following is a status of some the other East Span contracts.

#### East Span Interim Seismic Retrofit

Contractors: 1) California Engineering  
2) Balfour Beatty

Approved Capital Outlay Budget: \$30.8 M

Status: Completed October 2000

After the 1989 Loma Prieta Earthquake, and before the final retrofit strategy was determined for the East Span, Caltrans completed an interim retrofit of the existing bridge to prevent a catastrophic collapse of the bridge should a similar earthquake occur before the East Span was completely replaced. The interim retrofit was performed under two separate contracts that lengthened pier seats, added some structural members, and strengthened areas of the bridge so they would be more resilient during an earthquake.



Archeological Investigations



Existing East Span of the San Francisco-Oakland Bay Bridge

#### Stormwater Treatment Measures

Contractor: Diablo Construction, Inc.

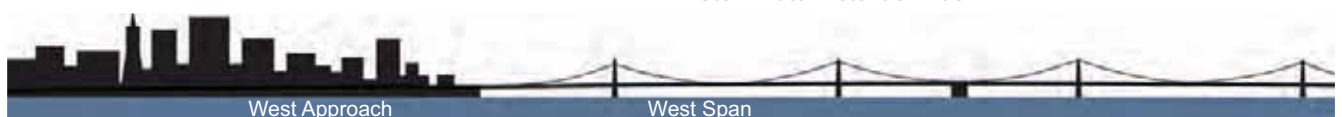
Approved Capital Outlay Budget: \$18.3 M

Status: Completed December 2008

The Stormwater Treatment Measures contract implemented a number of best practices for the management and treatment of stormwater runoff. Focused on the areas around and approaching the toll plaza, the contract added new drainage and built new bio-retention swales and other related constructs.



Stormwater Retention Basin





## Yerba Buena Island Substation

Contractor: West Bay Builders

Approved Capital Outlay Budget: \$11.6 M

Status: Completed May 2005

This contract relocated an electrical substation just east of the Yerba Buena Island Tunnel in preparation for the new East Span.

## Pile Installation Demonstration

Contractor: Manson and Dutra, Joint Venture

Approved Capital Outlay Budget: \$9.2 M

Status: Completed December 2000

While large-diameter battered piles are common in offshore drilling, the new East Span is one of the first bridges to use them in its foundations. To minimize project risks and build industry knowledge, a pile installation demonstration project was initiated to prove the efficacy of the proposed technology and methodology. The demonstration was highly successful and helped result in zero contract change orders or claims for pile driving on the project.

## H Existing Bridge Demolition

Contractor: TBD

Approved Capital Outlay Budget: \$239.1 M

Status: In Design

Design work on the contract will start in earnest as the opening of the new bridge to traffic approaches.



New YBI Electrical Substation

## I Electrical Cable Relocation

Contractor: Manson Construction

Approved Capital Outlay Budget: \$9.6 M

Status: Completed January 2008

A submerged cable from Oakland that is close to where the new bridge will touch down supplies electrical power to Treasure Island. To avoid any possible damage to the cable during construction, two new replacement cables were run from Oakland to Treasure Island. The extra cable was funded by the Treasure Island Development Authority.



## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### Antioch Bridge Seismic Retrofit Project

Contractor: California Engineering Contractors, Inc.

Approved Capital Outlay Budget: \$70.0 M

Status: 36% Complete as of November 2010

Serving the Delta region of the Bay Area, the Antioch Bridge takes State Route 160 traffic over the San Joaquin River, linking eastern Contra Costa County with Sacramento County. The current 1.8-mile-long steel plate girder bridge was opened in 1978 with one lane in each direction. The major retrofit measure for the bridge includes installing seismic isolation bearings at each of the 41 piers, strengthening piers 12 through 31 with steel cross-bracing between column bents and installing steel casings at all columns located at the Sherman Island approach slab bridge.

**Status:** The project received the SWPPP green rating on November 24, 2010. Drilling of bonding of dowels at piers 22 through 31 (Sherman Island) is completed for reinforcement of cross-frame pedestals. Vertical jacking stiffeners have been welded into place at frame 1 piers (Antioch side) in preparation to raise the superstructure so isolation bearings can be installed. The first two of 82 isolation bearings have been installed at pier 3. Installation of the stair towers and suspended platforms 7 through 21 are on hold until the week of December 15th, 2010.



Core Drilling Fluid Containment P7 ESA Fencing



Piers Being Fitted for Construction Access Scaffolding to Allow for Drilling and Bonding of Reinforcing Steel at Cross-Frame Pedestals



Concrete Preparation at Pier Surfaces to Receive Cross Bracing



Pier 3 Isolation Bearing Installed Prior to Grouting







Positioning of 48-inch Diameter Pile at Approach Slab Bridge



Environmentally Sensitive Area Fencing and Erosion Control along Project Boundaries

## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### Other Completed Projects

In the 1990s, the State Legislature identified seven of the nine state-owned toll bridges for seismic retrofit. In addition to the San Francisco-Oakland Bay Bridge, these included the Benicia-Martinez, Carquinez, Richmond-San Rafael and San Mateo-Hayward bridges in the Bay Area, and the Vincent Thomas and Coronado bridges in Southern California. Other than the East Span of the Bay Bridge, the retrofits of all of the bridges have been completed as planned.

#### San Mateo-Hayward Bridge Seismic Retrofit Project

**Project Status: Completed 2000**

The San Mateo-Hayward Bridge seismic retrofit project focused on strengthening the high-rise portion of the span. The foundations of the bridge were significantly upgraded with additional piles.



High-Rise Section of San Mateo-Hayward Bridge

#### 1958 Carquinez Bridge Seismic Retrofit Project

**Project Status: Completed 2002**

The eastbound 1958 Carquinez Bridge was retrofitted in 2002 with additional reinforcement of the cantilever thru-truss structure.

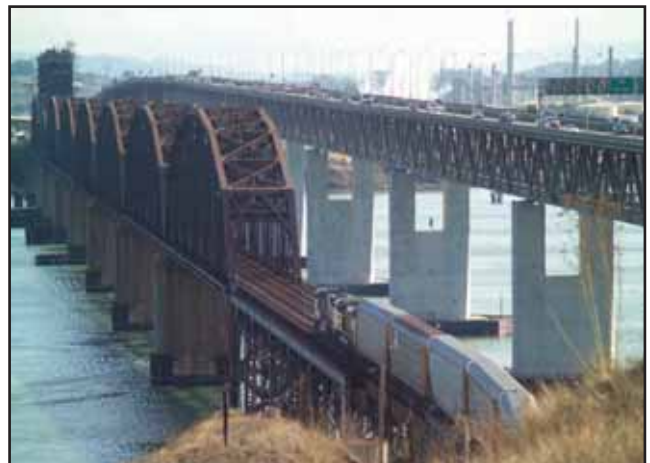


1958 Carquinez Bridge (foreground) with the 1927 Span (middle) under Demolition and the New Alfred Zampa Memorial Bridge (background)

#### 1962 Benicia-Martinez Bridge Seismic Retrofit Project

**Project Status: Completed 2003**

The southbound 1962 Benicia-Martinez Bridge was retrofitted to "Lifeline" status with the strengthening of the foundations and columns and the addition of seismic bearings that allow the bridge to move during a major seismic event. The Lifeline status means the bridge is designed to sustain minor to moderate damage after an event and to reopen quickly to emergency response traffic.



1962 Benicia-Martinez Bridge (right)

## Richmond-San Rafael Bridge Seismic Retrofit Project

**Project Status: Completed 2005**

The Richmond-San Rafael Bridge was retrofitted to a “No Collapse” classification to avoid catastrophic failure during a major seismic event. The foundations, columns, and truss of the bridge were strengthened, and the entire low-rise approach viaduct from Marin County was replaced.



Richmond-San Rafael Bridge

## Los Angeles-Vincent Thomas Bridge Seismic Retrofit Project

**Project Status: Completed 2000**

The Vincent Thomas Bridge is a 1,500-foot long suspension bridge crossing the Los Angeles Harbor in Los Angeles that links San Pedro with Terminal Island. The bridge was one of two state-owned toll bridges in Southern California (the other being the San Diego-Coronado Bridge). Opened in 1963, the bridge was seismically retrofitted as part of the TBSRP in 2000.



Los Angeles-Vincent Thomas Bridge

## San Diego-Coronado Bridge Seismic Retrofit Project

**Project Status: Completed 2002**

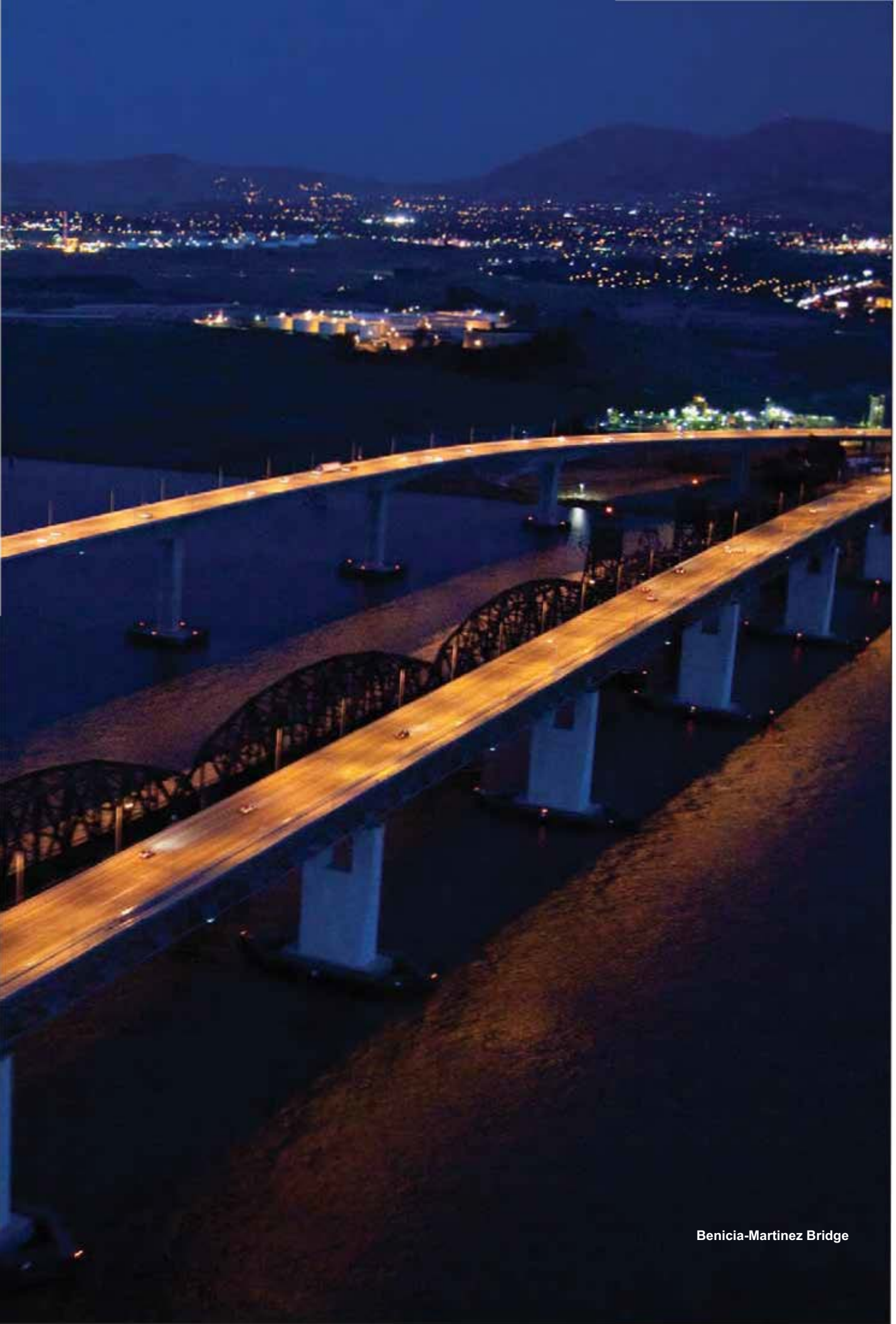
The San Diego-Coronado Bridge crosses over San Diego Bay and links the cities of San Diego and Coronado. Opened in 1969, the 2.1-mile long bridge was seismically retrofitted as part of the Toll Bridge Seismic Retrofit Project in 2002.



San Diego-Coronado Bridge







Benicia-Martinez Bridge

## REGIONAL MEASURE 1 TOLL BRIDGE PROGRAM



## REGIONAL MEASURE 1 PROGRAM

### Interstate 880/State Route 92 Interchange Reconstruction Project

**Project Status: In Construction**

The Interstate 880/State Route 92 Interchange Reconstruction Project is the final project under the Regional Measure 1 Toll Bridge Program. Project completion fulfills a promise made to Bay Area voters in 1988 to deliver a slate of projects that help expand bridge capacity and improve safety on the bridges.

### Interstate 880/State Route 92 Interchange Reconstruction Contract

Contractor: Flatiron/Granite

Approved Capital Outlay Budget: \$158.0 M

Status: 82% Complete as of November 2010

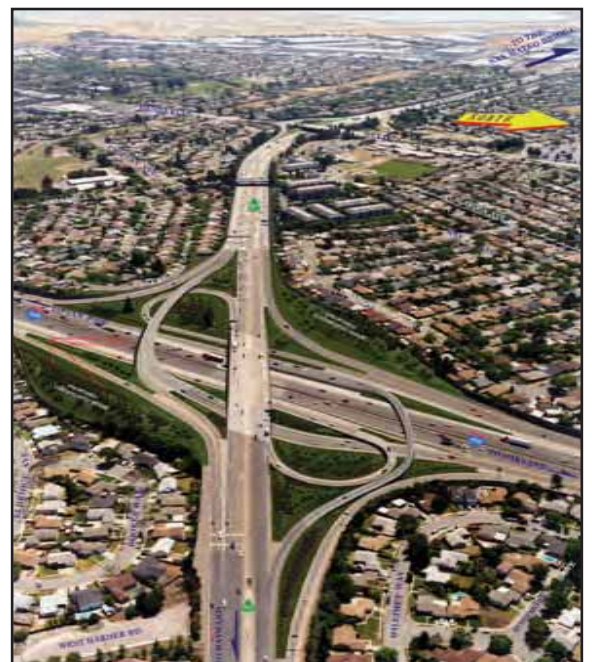
This corridor is consistently one of the Bay Area's most congested during the evening commute. This is due in part to the lane merging and weaving that is required by the existing cloverleaf interchange. The new interchange will feature direct freeway-to-freeway connector ramps that will increase traffic capacity and improve overall safety and traffic operations in the area. With the new direct-connector ramps, drivers coming off the San Mateo-Hayward Bridge can access Interstate 880 without having to compete with traffic headed onto east Route 92 from south Interstate 880 (see progress photos on pages 64 and 65).



Calaroga Bridge Work in Progress



Looking Southwest at the New NWCONN Bridge



Future Interstate 880/State Route 92 Interchange (as simulated) Looking West toward San Mateo



### ***Stage 1 – Construct East Route 92 to North Interstate 880 Connector***

The new east Route 92 to north Interstate 880 connector (ENCONN) is the most critical fly over structure for relieving congestion in the corridor. The ENCONN will be first used as a detour to allow for future stages of work, while keeping traffic flowing.

**Status:** ENCONN was completed and opened to detour traffic on May 16, 2009.

### ***Stage 2 – Replace South Side of Route 92 Separation Structure***

By detouring eastbound Route 92 traffic onto ENCONN, the existing separation structure that carries SR92 over I-880 can be replaced. The existing structure will be cut lengthwise, and then demolished and replaced separately. In this stage, the south side of the structure will be replaced, while west Route 92 and south Interstate 880 to east Route 92 traffic will stay on the remaining structure.

**Status:** Work on the south side of the separation structure is complete.

### ***Stage 3 – Replace North Side of Route 92 Separation Structure***

Upon completion of Stage 2, the existing north side of the separation structure will be demolished and replaced. Its traffic will then be shifted onto the newly reconstructed south side.

**Status:** The north side of the structure is scheduled to open to traffic in February, pending weather and construction progress.

### ***Stage 4 – Final Realignment and Other Work***

In addition to ENCONN and the separation structure, direct north 880 to west 92 connector (NWCONN) and west 92 to south 880 connector (WSCONN) remain to be completed. The new Eldridge Avenue pedestrian overcrossing is now complete.

**Status:** The NWCONN structure opened to traffic in October 2010.



**Stage 1 - Construct East Route 92 to North Interstate 880 Direct Connector**



**Stage 2 - Demolish and Replace South Side of Route 92 Separation Structure**



**Stage 3 - Demolish and Replace North Side of Route 92 Separation Structure**



**Stage 4 - Final Realignment and Other Work**

## REGIONAL MEASURE 1 PROGRAM

### Other Completed Projects

#### San Mateo-Hayward Bridge-Widening Project

**Project Status: Completed 2003**

This project expanded the low-rise concrete trestle section of the San Mateo-Hayward Bridge to allow for three lanes in each direction to match the existing configuration of the high-rise steel section of the bridge.



Widening of the San Mateo-Hayward Bridge Trestle on Left

#### Richmond-San Rafael Bridge Rehabilitation Projects

**Project Status: Completed 2006**

Two major rehabilitation projects for the Richmond-San Rafael Bridge were funded and completed: (1) replacement of the western concrete approach trestle and ship-collision protection fender system; and (2) rehabilitation of deck joints and resurfacing of the bridge deck.

In 2005, along with the seismic retrofit of the bridge, the trestle and fender replacement work was completed as part of the same project. Under a separate contract in 2006, the bridge was resurfaced with a polyester concrete overlay along with the repair of numerous deck joints.



New Richmond-San Rafael Bridge West Approach Trestle under Construction

#### Richmond Parkway Construction Project

**Project Status: Completed 2001**

The final connections to the Richmond Parkway from Interstate 580 near the Richmond-San Rafael Bridge were completed in May 2001.

## New Alfred Zampa Memorial (Carquinez) Bridge Project

**Project Status: Completed 2003**



New Alfred Zampa Memorial (Carquinez) Bridge Soon after Opening to Traffic, with Crockett Interchange Still under Construction

The new western span of the Carquinez Bridge, which replaced the original 1927 span, is a twin-towered suspension bridge with three mixed-flow lanes, a new carpool lane shoulders and a bicycle and pedestrian pathway.

## Benicia-Martinez Bridge Project

**Project Status: Completed 2009**



Benicia-Martinez Bridge Pedestrian/Bicycle Pathway Opened to the Public in August 2009

A two-year project to rehabilitate and reconfigure the original Benicia-Martinez Bridge began shortly after the opening of the new Congressman George Miller Bridge. The existing 1.2-mile roadway surface on the steel deck truss bridge was modified to carry four lanes of southbound traffic (one more than before)—with shoulders on both sides—plus a bicycle/pedestrian path on the west side of the span that connects to Park Road in Benicia and to Marina Vista Boulevard in Martinez. Reconstruction of the east side of the bridge and approaches was completed in August 2008, and reconstruction of the west side of the bridge and approaches and construction of the bicycle/pedestrian pathway was completed in August 2009.

## Bayfront Expressway (State Route 84) Widening Project

**Project Status: Completed 2004**

This project expanded and improved the roadway from the Dumbarton Bridge touchdown to the US 101/Marsh Road interchange by adding additional lanes and turn pockets and improving bicycle and pedestrian access in the area.







## **APPENDICES**

A. TBSRP AB 144/SB 66 Baseline Budget, Forecasts and Expenditures through November 30, 2010 (A-1 and A-2).....	46
B. TBSRP (SFOBB East Span Only) AB 144/SB 66 Baseline Budget, Forecasts and Expenditures through November 30, 2010 .....	50
C. Regional Measure 1 Program Cost Detail.....	53
D. Project Progress Diagrams .....	58
E. Project Photos.....	60
F. Glossary of Terms.....	68



## Appendix A-1: TBSRP AB 144/SB 66 Baseline Budget, Forecasts and Expenditures through November 30, 2010 (\$ Millions)

Contract	AB 144 / SB 66 Budget (07/2005)	Approved Changes	Current Approved Budget (11/2010)	Cost to Date (11/2010)	Cost Forecast (11/2010)	At-Completion Variance
a	c	d	e = c + d	f	g	h = g - e
<b>SFOBB East Span Replacement Project</b>						
Capital Outlay Support	959.3	203.0	1,162.3	896.5	1,282.5	120.2
Capital Outlay Construction	4,492.2	496.8	4,989.0	3,709.7	5,058.1	69.1
Other Budgeted Capital	35.1	(3.3)	31.8	0.7	7.7	(24.1)
<b>Total</b>	<b>5,486.6</b>	<b>696.5</b>	<b>6,183.1</b>	<b>4,606.9</b>	<b>6,348.3</b>	<b>165.2</b>
<b>SFOBB West Approach Replacement</b>						
Capital Outlay Support	120.0	(2.0)	118.0	117.8	118.5	0.5
Capital Outlay Construction	309.0	41.7	350.7	328.1	338.1	(12.6)
<b>Total</b>	<b>429.0</b>	<b>39.7</b>	<b>468.7</b>	<b>445.9</b>	<b>456.6</b>	<b>(12.1)</b>
<b>SFOBB West Span Retrofit</b>						
Capital Outlay Support	75.0	(0.2)	74.8	74.9	74.8	-
Capital Outlay Construction	232.9	(5.5)	227.4	227.4	227.4	-
<b>Total</b>	<b>307.9</b>	<b>(5.7)</b>	<b>302.2</b>	<b>302.3</b>	<b>302.2</b>	<b>-</b>
<b>Richmond-San Rafael Bridge Retrofit</b>						
Capital Outlay Support	134.0	(7.0)	127.0	126.8	127.0	-
Capital Outlay Construction	780.0	(90.5)	689.5	667.5	689.5	-
<b>Total</b>	<b>914.0</b>	<b>(97.5)</b>	<b>816.5</b>	<b>794.3</b>	<b>816.5</b>	<b>-</b>
<b>Benicia-Martinez Bridge Retrofit</b>						
Capital Outlay Support	38.1	-	38.1	38.1	38.1	-
Capital Outlay Construction	139.7	-	139.7	139.7	139.7	-
<b>Total</b>	<b>177.8</b>	<b>-</b>	<b>177.8</b>	<b>177.8</b>	<b>177.8</b>	<b>-</b>
<b>Carquinez Bridge Retrofit</b>						
Capital Outlay Support	28.7	0.1	28.8	28.8	28.8	-
Capital Outlay Construction	85.5	(0.1)	85.4	85.4	85.4	-
<b>Total</b>	<b>114.2</b>	<b>-</b>	<b>114.2</b>	<b>114.2</b>	<b>114.2</b>	<b>-</b>
<b>San Mateo-Hayward Retrofit</b>						
Capital Outlay Support	28.1	-	28.1	28.1	28.1	-
Capital Outlay Construction	135.4	(0.1)	135.3	135.3	135.3	-
<b>Total</b>	<b>163.5</b>	<b>(0.1)</b>	<b>163.4</b>	<b>163.4</b>	<b>163.4</b>	<b>-</b>
<b>Vincent Thomas Bridge Retrofit (Los Angeles)</b>						
Capital Outlay Support	16.4	-	16.4	16.4	16.4	-
Capital Outlay Construction	42.1	(0.1)	42.0	42.0	42.0	-
<b>Total</b>	<b>58.5</b>	<b>(0.1)</b>	<b>58.4</b>	<b>58.4</b>	<b>58.4</b>	<b>-</b>
<b>San Diego-Coronado Bridge Retrofit</b>						
Capital Outlay Support	33.5	(0.3)	33.2	33.2	33.2	-
Capital Outlay Construction	70.0	(0.6)	69.4	69.4	69.4	-
<b>Total</b>	<b>103.5</b>	<b>(0.9)</b>	<b>102.6</b>	<b>102.6</b>	<b>102.6</b>	<b>-</b>



## Appendix A-1: TBSRP AB 144/SB 66 Baseline Budget, Forecasts and Expenditures through November 30, 2010 (\$ Millions) Cont.

Contract	AB 144 / SB 66 Budget (07/2005)	Approved Changes	Current Approved Budget (11/2010)	Cost to Date (11 /2010)	Cost Forecast (11/2010)	At-Completion Variance
a	c	d	e = c + d	f	g	h = g - e
<b>Antioch Bridge</b>						
Capital Outlay Support	-	31.0	31.0	10.6	35.5	4.5
Capital Outlay Support by BATA				6.2		
Capital Outlay Construction	-	70.0	70.0	12.6	63.6	(6.4)
<b>Total</b>	<b>-</b>	<b>101.0</b>	<b>101.0</b>	<b>29.4</b>	<b>99.1</b>	<b>(1.9)</b>
<b>Dumbarton Bridge</b>						
Capital Outlay Support	-	56.0	56.0	17.0	56.0	-
Capital Outlay Support by BATA				6.0		
Capital Outlay Construction	-	92.7	92.7	4.2	92.7	-
<b>Total</b>	<b>-</b>	<b>148.7</b>	<b>148.7</b>	<b>27.2</b>	<b>148.7</b>	<b>-</b>
<b>Subtotal Capital Outlay Support</b>	<b>1,433.1</b>	<b>280.6</b>	<b>1,713.7</b>	<b>1,400.4</b>	<b>1,838.9</b>	<b>125.2</b>
<b>Subtotal Capital Outlay</b>	<b>6,286.8</b>	<b>604.3</b>	<b>6,891.1</b>	<b>5,421.3</b>	<b>6,941.2</b>	<b>50.1</b>
<b>Subtotal Other Budgeted Capital</b>	<b>35.1</b>	<b>(3.3)</b>	<b>31.8</b>	<b>0.7</b>	<b>7.7</b>	<b>(24.1)</b>
<b>Miscellaneous Program Costs</b>	<b>30.0</b>	<b>-</b>	<b>30.0</b>	<b>25.5</b>	<b>30.0</b>	<b>-</b>
<b>Subtotal Toll Bridge Seismic Retrofit Program</b>	<b>7,785.0</b>	<b>881.6</b>	<b>8,666.6</b>	<b>6,847.9</b>	<b>8,817.8</b>	<b>151.2</b>
<b>Net Programmatic Risks*</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>59.1</b>	<b>59.1</b>
<b>Program Contingency</b>	<b>900.0</b>	<b>(484.6)</b>	<b>415.4</b>	<b>-</b>	<b>205.1</b>	<b>(210.2)</b>
<b>Total Toll Bridge Seismic Retrofit Program <sup>1</sup></b>	<b>8,685.0</b>	<b>397.0</b>	<b>9,082.0</b>	<b>6,847.9</b>	<b>9,082.0</b>	<b>-</b>

<sup>1</sup> Figures may not sum up to totals due to rounding effects.

## Appendix A-2: TBSRP AB 144/SB 66 Baseline Budget, Forecasts and Expenditures through November 30, 2010 (\$ Millions)

Bridge	AB 144 Baseline Budget	TBPOC Current Approved Budget	Expenditures to date and Encumbrances as of November 2010 see Note (1)	not yet spent or Encumbered as of November 2010	Total Forecast as of November 2010
a	b	c	d	e	f = d + e
<b>Other Completed Projects</b>					
Capital Outlay Support	144.9	144.6	144.6	-	144.6
Capital Outlay	472.6	471.9	472.6	(0.8)	471.8
<b>Total</b>	<b>617.5</b>	<b>616.5</b>	<b>617.2</b>	<b>(0.8)</b>	<b>616.4</b>
<b>Richmond-San Rafael</b>					
Capital Outlay Support	134.0	127.0	126.8	0.2	127.0
Capital Outlay	698.0	689.5	674.1	15.4	689.5
Project Reserves	82.0	-	-	-	-
<b>Total</b>	<b>914.0</b>	<b>816.5</b>	<b>800.9</b>	<b>15.6</b>	<b>816.5</b>
<b>West Span Retrofit</b>					
Capital Outlay Support	75.0	74.8	74.8	-	74.8
Capital Outlay	232.9	227.4	232.9	(5.5)	227.4
<b>Total</b>	<b>307.9</b>	<b>302.2</b>	<b>307.7</b>	<b>(5.5)</b>	<b>302.2</b>
<b>West Approach</b>					
Capital Outlay Support	120.0	118.0	117.8	0.7	118.5
Capital Outlay	309.0	350.7	345.6	(7.5)	338.1
<b>Total</b>	<b>429.0</b>	<b>468.7</b>	<b>463.4</b>	<b>(6.8)</b>	<b>456.6</b>
<b>SFOBB East Span - Skyway</b>					
Capital Outlay Support	197.0	181.2	181.2	-	181.2
Capital Outlay	1,293.0	1,254.1	1,368.3	(114.2)	1,254.1
<b>Total</b>	<b>1,490.0</b>	<b>1,435.3</b>	<b>1,549.5</b>	<b>(114.2)</b>	<b>1,435.3</b>
<b>SFOBB East Span - SAS - Superstructure</b>					
Capital Outlay Support	214.6	375.5	273.1	207.2	480.3
Capital Outlay	1,753.7	2,046.8	2,046.9	50.5	2,097.4
<b>Total</b>	<b>1,968.3</b>	<b>2,422.3</b>	<b>2,320.0</b>	<b>257.7</b>	<b>2,577.7</b>
<b>SFOBB East Span - SAS - Foundations</b>					
Capital Outlay Support	62.5	37.6	37.6	-	37.6
Capital Outlay	339.9	307.3	308.7	(1.4)	307.3
<b>Total</b>	<b>402.4</b>	<b>344.9</b>	<b>346.3</b>	<b>(1.4)</b>	<b>344.9</b>
<b>Small YBI Projects</b>					
Capital Outlay Support	10.6	10.6	10.1	0.5	10.6
Capital Outlay	15.6	15.6	16.6	(0.9)	15.7
<b>Total</b>	<b>26.2</b>	<b>26.2</b>	<b>26.7</b>	<b>(0.4)</b>	<b>26.3</b>
<b>YBI Detour</b>					
Capital Outlay Support	29.5	90.7	87.8	2.5	90.3
Capital Outlay	131.9	492.8	493.1	(5.6)	487.5
<b>Total</b>	<b>161.4</b>	<b>583.5</b>	<b>580.9</b>	<b>(3.1)</b>	<b>577.8</b>
<b>YBI- Transition Structures</b>					
Capital Outlay Support	78.7	106.4	38.0	79.2	117.2
Capital Outlay	299.4	206.3	125.9	118.0	243.9
<b>Total</b>	<b>378.1</b>	<b>312.7</b>	<b>163.9</b>	<b>197.2</b>	<b>361.1</b>

## Appendix A-2: TBSRP AB 144/SB 66 Baseline Budget, Forecasts and Expenditures through November 30, 2010 (\$ Millions) Cont.

Contract	AB 144 Baseline Budget	TBPOC Current Approved Budget	Expenditures to date and Encumbrances as of November 2010 see Note (1)	Estimated Costs not yet spent or Encumbered as of November 2010	Total Forecast as of November 2010
a	b	c	d	e	f = d + e
<b>Oakland Touchdown</b>					
Capital Outlay Support	74.4	93.9	83.3	14.0	97.3
Capital Outlay	283.8	288.0	218.0	62.2	280.2
<b>Total</b>	<b>358.2</b>	<b>381.9</b>	<b>301.3</b>	<b>76.2</b>	<b>377.5</b>
<b>East Span Other Small Projects</b>					
Capital Outlay Support	212.3	206.5	214.2	(7.6)	206.6
Capital Outlay	170.8	170.8	94.0	52.6	146.6
<b>Total</b>	<b>383.1</b>	<b>377.3</b>	<b>308.2</b>	<b>45.0</b>	<b>353.2</b>
<b>Existing Bridge Demolition</b>					
Capital Outlay Support	79.7	59.9	0.4	61.0	61.4
Capital Outlay	239.2	239.1	-	233.0	233.0
<b>Total</b>	<b>318.9</b>	<b>299.0</b>	<b>0.4</b>	<b>294.0</b>	<b>294.4</b>
<b>Antioch Bridge</b>					
Capital Outlay Support	-	31.0	10.9	18.4	29.3
Capital Outlay Support by BATA			<b>6.2</b>	<b>-</b>	<b>6.2</b>
Capital Outlay	-	70.0	47.0	16.6	63.6
<b>Total</b>	<b>-</b>	<b>101.0</b>	<b>64.1</b>	<b>35.0</b>	<b>99.1</b>
<b>Dumbarton Bridge</b>					
Capital Outlay Support	-	56.0	17.0	33.0	50.0
Capital Outlay Support by BATA			6.0	-	6.0
Capital Outlay	-	92.7	55.2	37.5	92.7
<b>Total</b>	<b>-</b>	<b>148.7</b>	<b>78.2</b>	<b>70.5</b>	<b>148.7</b>
<b>Miscellaneous Program Costs</b>	<b>30.0</b>	<b>30.0</b>	<b>25.5</b>	<b>4.5</b>	<b>30.0</b>
<b>Total Capital Outlay Support</b>	<b>1,463.2</b>	<b>1,743.7</b>	<b>1,455.3</b>	<b>413.6</b>	<b>1,868.9</b>
<b>Total Capital Outlay</b>	<b>6,321.8</b>	<b>6,923.0</b>	<b>6,498.9</b>	<b>450.0</b>	<b>6,948.9</b>
<b>Program Total <sup>1</sup></b>	<b>7,785.0</b>	<b>8,666.7</b>	<b>7,954.2</b>	<b>863.6</b>	<b>8,817.8</b>

(1). Funds allocated to project or contract for Capital Outlay and Support needs includes Capital Outlay Support total allocation for FY 06/07.

(2). BSA provided a distribution of program contingency in December 2004 based in Bechtel Infrastructure Corporation input.

This Column is subject to revision upon completion of Department's risk assessment update.

(3) Total Capital Outlay Support includes program indirect costs.

<sup>1</sup> Figures may not sum up to totals due to rounding effects.



## Appendix B: TBSRP (SFOBB East Span Only) AB 144/SB 66 Baseline Budget, Forecasts and Expenditures through November 30, 2010 (\$ Millions)

Contract a	AB 144 / SB 66 Budget (07/2005) c	Approved Changes d	Current Approved Budget (11/2010) e = c + d	Cost to Date (11/2010) f	Cost Forecast (11/2010) g	At- Completion Variance h = g - e
<b>San Francisco-Oakland Bay Bridge East Span Replacement Project</b>						
<b>East Span - SAS Superstructure</b>						
Capital Outlay Support	214.6	160.9	375.5	267.2	480.3	104.8
Capital Outlay Construction	1,753.7	293.1	2,046.8	1,348.7	2,097.4	50.6
<b>Total</b>	<b>1,968.3</b>	<b>454.0</b>	<b>2,422.3</b>	<b>1,615.9</b>	<b>2,577.7</b>	<b>155.4</b>
<b>SAS W2 Foundations</b>						
Capital Outlay Support	10.0	(0.8)	9.2	9.2	9.2	-
Capital Outlay Construction	26.4	-	26.4	26.5	26.4	-
<b>Total</b>	<b>36.4</b>	<b>(0.8)</b>	<b>35.6</b>	<b>35.7</b>	<b>35.6</b>	<b>-</b>
<b>YBI South/South Detour</b>						
Capital Outlay Support	29.4	61.3	90.7	85.3	90.3	(0.4)
Capital Outlay Construction	131.9	360.9	492.8	464.8	487.5	(5.3)
<b>Total</b>	<b>161.3</b>	<b>422.2</b>	<b>583.5</b>	<b>550.1</b>	<b>577.8</b>	<b>(5.7)</b>
<b>East Span - Skyway</b>						
Capital Outlay Support	197.0	(15.8)	181.2	181.2	181.2	-
Capital Outlay Construction	1,293.0	(38.9)	1,254.1	1,236.9	1,254.1	-
<b>Total</b>	<b>1,490.0</b>	<b>(54.7)</b>	<b>1,435.3</b>	<b>1,418.1</b>	<b>1,435.3</b>	<b>-</b>
<b>East Span - SAS E2/T1 Foundations</b>						
Capital Outlay Support	52.5	(24.1)	28.4	28.4	28.4	-
Capital Outlay Construction	313.5	(32.6)	280.9	274.8	280.9	-
<b>Total</b>	<b>366.0</b>	<b>(56.7)</b>	<b>309.3</b>	<b>303.2</b>	<b>309.3</b>	<b>-</b>
<b>YBI Transition Structures (see notes below)</b>						
Capital Outlay Support	78.7	27.7	106.4	37.3	117.2	10.8
Capital Outlay Construction	299.3	(93.0)	206.3	17.0	243.9	37.6
<b>Total</b>	<b>378.0</b>	<b>(65.3)</b>	<b>312.7</b>	<b>54.3</b>	<b>361.1</b>	<b>48.4</b>
<b>* YBI- Transition Structures</b>						
Capital Outlay Support			16.4	16.4	16.5	0.1
Capital Outlay Construction			-	-	-	-
<b>Total</b>			<b>16.4</b>	<b>16.4</b>	<b>16.5</b>	<b>0.1</b>
<b>* YBI- Transition Structures Contract No. 1</b>						
Capital Outlay Support			57.0	14.9	67.0	10.0
Capital Outlay Construction			144.0	17.0	169.5	25.5
<b>Total</b>			<b>201.0</b>	<b>31.9</b>	<b>236.5</b>	<b>35.5</b>
<b>* YBI- Transition Structures Contract No. 2</b>						
Capital Outlay Support			32.0	6.0	32.7	0.7
Capital Outlay Construction			59.0	-	71.1	12.1
<b>Total</b>			<b>91.0</b>	<b>6.0</b>	<b>103.8</b>	<b>12.8</b>
<b>* YBI- Transition Structures Contract No. 3 Landscape</b>						
Capital Outlay Support			1.0	-	1.0	-
Capital Outlay Construction			3.3	-	3.3	-
<b>Total</b>			<b>4.3</b>	<b>-</b>	<b>4.3</b>	<b>-</b>

## Appendix B: TBSRP (SFOBB East Span Only) AB 144/SB 66 Baseline Budget, Forecasts and Expenditures through November 30, 2010 (\$ Millions) Cont.

Contract	AB 144 / SB 66 Budget (07/2005)	Approved Changes	Current Approved Budget (11/2010)	Cost to Date (11/2010)	Cost Forecast (11/2010)	At-Completion Variance
a	c	d	e = c + d	f	g	h = g - e
<b>Oakland Touchdown (see notes below)</b>						
Capital Outlay Support	74.4	19.5	93.9	79.5	97.3	3.4
Capital Outlay Construction	283.8	4.2	288.0	209.6	280.2	(7.8)
<b>Total</b>	<b>358.2</b>	<b>23.7</b>	<b>381.9</b>	<b>289.1</b>	<b>377.5</b>	<b>(4.4)</b>
<b>*OTD Prior-to-Split Costs</b>						
Capital Outlay Support			21.7	20.1	21.7	-
Capital Outlay Construction			-	-	-	-
<b>Total</b>			<b>21.7</b>	<b>20.1</b>	<b>21.7</b>	<b>-</b>
<b>*OTD Submarine Cable</b>						
Capital Outlay Support			0.9	0.9	0.9	-
Capital Outlay Construction			9.6	7.9	9.6	-
<b>Total</b>			<b>10.5</b>	<b>8.8</b>	<b>10.5</b>	<b>-</b>
<b>*OTD No.1 (Westbound)</b>						
Capital Outlay Support			47.3	49.2	48.2	0.9
Capital Outlay Construction			212.0	201.7	203.4	(8.6)
<b>Total</b>			<b>259.3</b>	<b>250.9</b>	<b>251.6</b>	<b>(7.7)</b>
<b>*OTD No.2 (Eastbound)</b>						
Capital Outlay Support			22.5	8.7	25.0	2.5
Capital Outlay Construction			62.0	-	62.8	0.8
<b>Total</b>			<b>84.5</b>	<b>8.7</b>	<b>87.8</b>	<b>3.3</b>
<b>*OTD Electrical Systems</b>						
Capital Outlay Support			1.5	0.8	1.5	-
Capital Outlay Construction			4.4	-	4.4	-
<b>Total</b>			<b>5.9</b>	<b>0.8</b>	<b>5.9</b>	<b>-</b>
<b>Existing Bridge Demolition</b>						
Capital Outlay Support	79.7	(19.8)	59.9	0.4	61.4	1.5
Capital Outlay Construction	239.2	(0.1)	239.1	-	233.0	(6.1)
<b>Total</b>	<b>318.9</b>	<b>(19.9)</b>	<b>299.0</b>	<b>0.4</b>	<b>294.4</b>	<b>(4.6)</b>
<b>YBI/SAS Archeology</b>						
Capital Outlay Support	1.1	-	1.1	1.1	1.1	-
Capital Outlay Construction	1.1	-	1.1	1.1	1.1	-
<b>Total</b>	<b>2.2</b>	<b>-</b>	<b>2.2</b>	<b>2.2</b>	<b>2.2</b>	<b>-</b>
<b>YBI - USCG Road Relations</b>						
Capital Outlay Support	3.0	-	3.0	2.7	3.0	-
Capital Outlay Construction	3.0	-	3.0	2.8	3.0	-
<b>Total</b>	<b>6.0</b>	<b>-</b>	<b>6.0</b>	<b>5.5</b>	<b>6.0</b>	<b>-</b>
<b>YBI - Substation and Viaduct</b>						
Capital Outlay Support	6.5	-	6.5	6.4	6.5	-
Capital Outlay Construction	11.6	-	11.6	11.3	11.6	-
<b>Total</b>	<b>18.1</b>	<b>-</b>	<b>18.1</b>	<b>17.7</b>	<b>18.1</b>	<b>-</b>
<b>Oakland Geofill</b>						
Capital Outlay Support	2.5	-	2.5	2.5	2.5	-
Capital Outlay Construction	8.2	-	8.2	8.2	8.2	-
<b>Total</b>	<b>10.7</b>	<b>-</b>	<b>10.7</b>	<b>10.7</b>	<b>10.7</b>	<b>-</b>

## Appendix B: TBSRP (SFOBB East Span Only) AB 144/SB 66 Baseline Budget, Forecasts and Expenditures through November 30, 2010 (\$ Millions) Cont.

Contract	AB 144 / SB 66 Budget (07/2005)	Approved Changes	Current Approved Budget (11/2010)	Cost to Date (11/2010)	Cost Forecast (11/2010)	At-Completion Variance
a	c	d	e = c + d	f	g	h = g - e
<b>Pile Installation Demonstration Project</b>						
Capital Outlay Support	1.8	-	1.8	1.8	1.8	-
Capital Outlay Construction	9.3	(0.1)	9.2	9.2	9.3	-
<b>Total</b>	<b>11.1</b>	<b>(0.1)</b>	<b>11.0</b>	<b>11.0</b>	<b>11.1</b>	<b>-</b>
<b>Stormwater Treatment Measures</b>						
Capital Outlay Support	6.0	2.2	8.2	8.1	8.2	-
Capital Outlay Construction	15.0	3.3	18.3	16.7	18.3	-
<b>Total</b>	<b>21.0</b>	<b>5.5</b>	<b>26.5</b>	<b>24.8</b>	<b>26.5</b>	<b>-</b>
<b>Right-of-Way and Environmental Mitigation</b>						
Capital Outlay Support	-	-	-	-	-	-
Capital Outlay & Right-of-Way	72.4	-	72.4	51.3	72.4	-
<b>Total</b>	<b>72.4</b>	<b>-</b>	<b>72.4</b>	<b>51.3</b>	<b>72.4</b>	<b>-</b>
<b>Sunk Cost - Existing East Span Retrofit</b>						
Capital Outlay Support	39.5	-	39.5	39.5	39.5	-
Capital Outlay Construction	30.8	-	30.8	30.8	30.8	-
<b>Total</b>	<b>70.3</b>	<b>-</b>	<b>70.3</b>	<b>70.3</b>	<b>70.3</b>	<b>-</b>
<b>Other Capital Outlay Support</b>						
Environmental Phase	97.7	-	97.7	97.8	97.7	-
Pre-Split Project Expenditures	44.9	-	44.9	44.9	44.9	-
Non-project Specific Costs	20.0	(8.0)	12.0	3.2	12.0	-
<b>Total</b>	<b>162.6</b>	<b>(8.0)</b>	<b>154.6</b>	<b>145.9</b>	<b>154.6</b>	<b>-</b>
<b>Subtotal Capital Outlay Support</b>	<b>959.3</b>	<b>203.0</b>	<b>1,162.3</b>	<b>896.5</b>	<b>1,282.5</b>	<b>120.2</b>
<b>Subtotal Capital Outlay Construction</b>	<b>4,492.2</b>	<b>496.8</b>	<b>4,989.0</b>	<b>3,709.7</b>	<b>5,058.1</b>	<b>69.1</b>
<b>Other Budgeted Capital</b>	<b>35.1</b>	<b>(3.3)</b>	<b>31.8</b>	<b>0.7</b>	<b>7.7</b>	<b>(24.1)</b>
						<b>-</b>
<b>Total SFOBB East Span Replacement Project <sup>1</sup></b>	<b>5,486.6</b>	<b>696.5</b>	<b>6,183.1</b>	<b>4,606.9</b>	<b>6,348.3</b>	<b>165.2</b>

<sup>1</sup> Figures may not sum up to totals due to rounding effects.



## Appendix C: Regional Measure 1 Program Cost Detail (\$ Millions)

Contract	AB 144 / SB 66 Budget (07/2005)	Approved Changes	Current Approved Budget (11/2010)	Cost to Date (11/2010)	Cost Forecast (11/2010)	At- Completion Variance
a	c	d	e = c + d	f	g	h = g - e
<b>New Benicia-Martinez Bridge Project</b>						
<b>New Bridge</b>						
Capital Outlay Support						
BATA Funding	84.9	6.9	91.8	91.9	91.9	0.1
Non-Bata Funding	-	0.1	0.1	0.1	0.1	-
Subtotal	84.9	7.0	91.9	92.0	92.0	0.1
Capital Outlay Construction						
BATA Funding	661.9	94.6	756.5	753.8	756.5	-
Non-Bata Funding	10.1	-	10.1	10.1	10.1	-
Subtotal	672.0	94.6	766.6	763.9	766.6	-
<b>Total</b>	<b>756.9</b>	<b>101.6</b>	<b>858.5</b>	<b>855.9</b>	<b>858.6</b>	<b>0.1</b>
<b>I-680/I-780 Interchange Reconstruction</b>						
Capital Outlay Support						
BATA Funding	24.9	5.2	30.1	30.1	30.1	-
Non-Bata Funding	1.4	5.2	6.6	6.3	6.6	-
Subtotal	26.3	10.4	36.7	36.4	36.7	-
Capital Outlay Construction						
BATA Funding	54.7	26.9	81.6	77.1	81.6	-
Non-Bata Funding	21.6	-	21.6	21.7	21.7	0.1
Subtotal	76.3	26.9	103.2	98.8	103.3	0.1
<b>Total</b>	<b>102.6</b>	<b>37.3</b>	<b>139.9</b>	<b>135.2</b>	<b>140.0</b>	<b>0.1</b>
<b>I-680/Marina Vista Interchange Reconstruction</b>						
Capital Outlay Support	18.3	1.8	20.1	20.2	20.2	0.1
Capital Outlay Construction	51.5	4.9	56.4	56.1	56.4	-
<b>Total</b>	<b>69.8</b>	<b>6.7</b>	<b>76.5</b>	<b>76.3</b>	<b>76.6</b>	<b>0.1</b>
<b>New Toll Plaza and Administration Building</b>						
Capital Outlay Support	11.9	3.8	15.7	15.7	15.7	-
Capital Outlay Construction	24.3	2.0	26.3	25.1	26.3	-
<b>Total</b>	<b>36.2</b>	<b>5.8</b>	<b>42.0</b>	<b>40.8</b>	<b>42.0</b>	<b>-</b>
<b>Existing Bridge &amp; Interchange Modifications</b>						
Capital Outlay Support						
BATA Funding	4.3	13.5	17.8	17.9	17.9	0.1
Non-Bata Funding	-	0.9	0.9	0.8	0.9	-
Subtotal	4.3	14.4	18.7	18.7	18.8	0.1
Capital Outlay Construction						
BATA Funding	17.2	32.8	50.0	37.2	50.0	-
Non-Bata Funding	-	9.5	9.5	-	9.5	-
Subtotal	17.2	42.3	59.5	37.2	59.5	-
<b>Total</b>	<b>21.5</b>	<b>56.7</b>	<b>78.2</b>	<b>55.9</b>	<b>78.3</b>	<b>0.1</b>
<b>Other Contracts</b>						
Capital Outlay Support	11.4	(2.3)	9.1	9.2	9.2	0.1
Capital Outlay Construction	20.3	3.3	23.6	18.3	23.6	-
Capital Outlay Right-of-Way	20.4	(0.1)	20.3	17.0	20.3	-
<b>Total</b>	<b>52.1</b>	<b>0.9</b>	<b>53.0</b>	<b>44.5</b>	<b>53.1</b>	<b>0.1</b>

## Appendix C: Regional Measure 1 Program Cost Detail (\$ Millions) Cont.

Contract	AB 144 / SB 66 Budget (07/2005)	Approved Changes	Current Approved Budget (11/2010)	Cost to Date (11/2010)	Cost Forecast (11/2010)	At- Completion Variance
a	c	d	e = c + d	f	g	h = g - e
New Benicia-Martinez Bridge Project continued...						
Subtotal BATA Capital Outlay Support	155.7	28.9	184.6	185.0	185.0	0.4
Subtotal BATA Capital Outlay Construction	829.9	164.5	994.4	967.6	994.4	-
Subtotal Capital Outlay Right-of-Way	20.4	(0.1)	20.3	17.0	20.3	-
Subtotal Non-BATA Capital Outlay Support	1.4	6.2	7.6	7.2	7.6	-
Subtotal Non-BATA Capital Outlay Construction	31.7	9.5	41.2	31.8	41.3	0.1
Project Reserves	20.8	3.6	24.4	-	23.9	(0.5)
Total New Benicia-Martinez Bridge Project						
	1,059.9	212.6	1,272.5	1,208.3	1,272.5	-
Notes:	Includes EA's 00601_,00603_,00605_,00606_,00608_,00609_,0060A_,0060C_,0060E_,0060F_,0060G_,0060H_, and all Project Right-of-Way					
Carquinez Bridge Replacement Project						
New Bridge						
Capital Outlay Support	60.5	(0.3)	60.2	60.2	60.2	-
Capital Outlay Construction	253.3	2.7	256.0	255.9	256.0	-
Total	313.8	2.4	316.2	316.1	316.2	-
Crockett Interchange Reconstruction						
Capital Outlay Support	32.0	(0.1)	31.9	31.9	31.9	-
Capital Outlay Construction	73.9	(1.9)	72.0	71.9	72.0	-
Total	105.9	(2.0)	103.9	103.8	103.9	-
Existing 1927 Bridge Demolition						
Capital Outlay Support	16.1	(0.5)	15.6	15.7	15.7	0.1
Capital Outlay Construction	35.2	-	35.2	34.8	35.2	-
Total	51.3	(0.5)	50.8	50.5	50.9	0.1
Other Contracts						
Capital Outlay Support	15.8	1.2	17.0	16.4	17.0	-
Capital Outlay Construction	18.8	(1.2)	17.6	16.3	17.6	-
Capital Outlay Right-of-Way	10.5	(0.1)	10.4	9.9	10.4	-
Total	45.1	(0.1)	45.0	42.6	45.0	-
Subtotal BATA Capital Outlay Support						
	124.4	0.3	124.7	124.2	124.8	0.1
Subtotal BATA Capital Outlay Construction						
	381.2	(0.4)	380.8	378.9	380.8	-
Subtotal Capital Outlay Right-of-Way						
	10.5	(0.1)	10.4	9.9	10.4	-
Project Reserves						
	12.1	(9.8)	2.3	-	2.2	(0.1)
Total Carquinez Bridge Replacement Project <sup>1</sup>						
	528.2	(10.0)	518.2	513.0	518.2	-
Notes						
Other Contracts include EA's 01301_,01302_,01303_,01304_,01305_,01306_,01307_,01308_,01309_,0130A_,0130C_,0130D_,0130F_,0130G_,0130H_,0130J_,00453_,00493_,04700_,00607_,2A270_,and 29920_ and all Project Right-of-Way						

<sup>1</sup> Figures may not sum up to totals due to rounding effects.

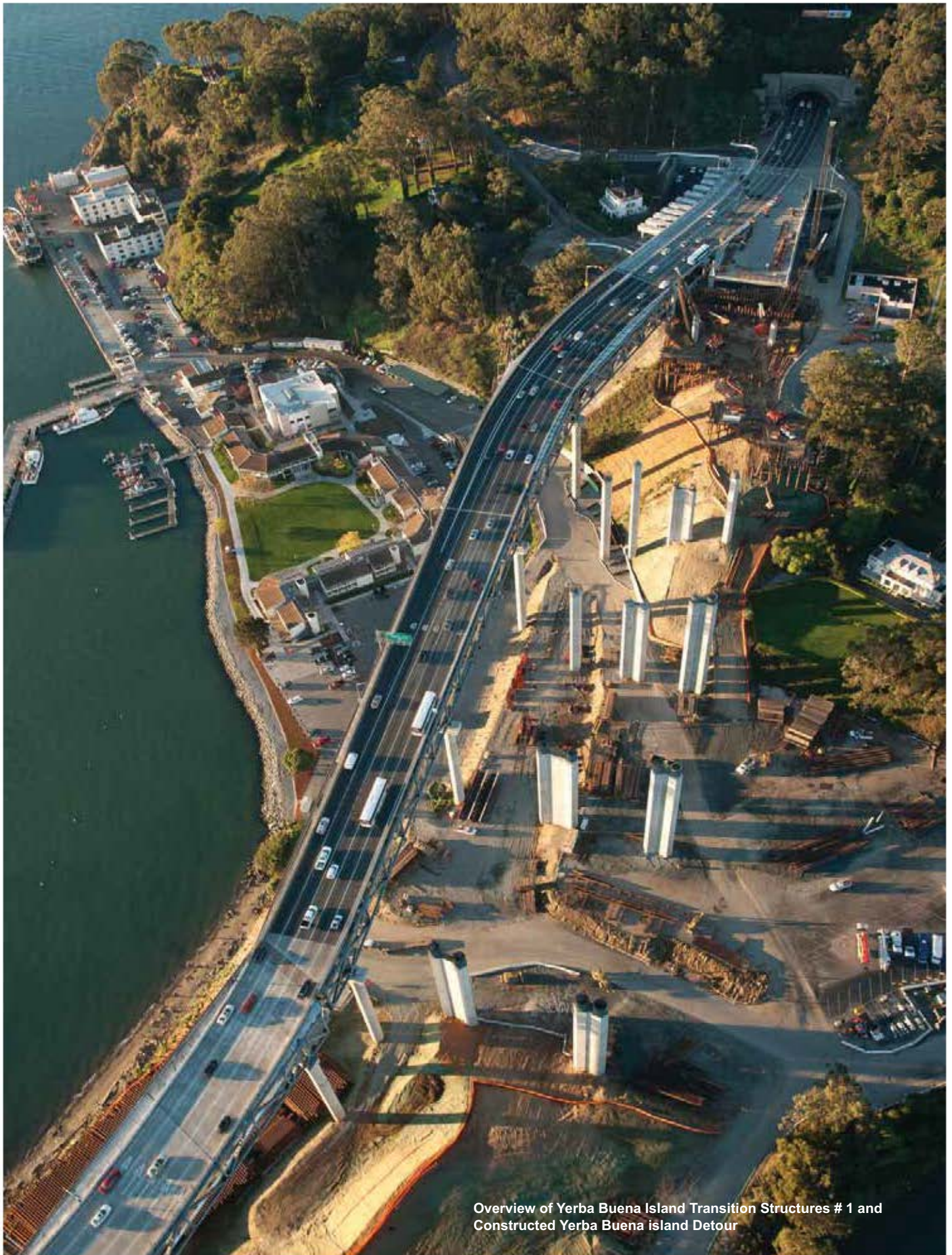
## Appendix C: Regional Measure 1 Program Cost Detail (\$ Millions) Cont.

Contract	AB 144 / SB 66 Budget (07/2005)	Approved Changes	Current Approved Budget (11/2010)	Cost to Date (11/2010)	Cost Forecast (11/2010)	At- Completion Variance
a	c	d	e = c + d	f	g	h = g - e
<b>Richmond-San Rafael Bridge Trestle. Fender, and Deck Joint Rehabilitation</b>						
			<b>\$</b>			
Capital Outlay Support						
BATA Funding	2.2	(0.8)	1.4	1.4	1.4	-
Non-BATA Funding	8.6	1.8	10.4	10.4	10.4	-
Subtotal	10.8	1.0	11.8	11.8	11.8	-
Capital Outlay Construction						
BATA Funding	40.2	(6.8)	33.4	33.3	33.4	-
Non-BATA Funding	51.1	-	51.1	51.1	51.1	-
Subtotal	91.3	(6.8)	84.5	84.4	84.5	-
Project Reserves	-	0.8	0.8	-	0.8	-
<b>Total</b>	<b>102.1</b>	<b>(5.0)</b>	<b>97.1</b>	<b>96.2</b>	<b>97.1</b>	<b>-</b>
<b>Richmond-San Rafael Bridge Deck Overlay Rehabilitation</b>						
Capital Outlay Support						
BATA Funding	4.0	(0.7)	3.3	3.3	3.3	-
Non-BATA Funding	4.0	(4.0)	-	-	-	-
Subtotal	8.0	(4.7)	3.3	3.3	3.3	-
Capital Outlay Construction	16.9	(0.6)	16.3	16.3	16.3	-
Project Reserves	0.1	0.3	0.4	-	0.4	-
<b>Total</b>	<b>25.0</b>	<b>(5.0)</b>	<b>20.0</b>	<b>19.6</b>	<b>20.0</b>	<b>-</b>
<b>Richmond Parkway Project (RM 1 Share Only)</b>						
Capital Outlay Support	-	-	-	-	-	-
Capital Outlay Construction	5.9	-	5.9	4.3	5.9	-
<b>Total</b>	<b>5.9</b>	<b>-</b>	<b>5.9</b>	<b>4.3</b>	<b>5.9</b>	<b>-</b>
<b>San Mateo-Hayward Bridge Widening</b>						
Capital Outlay Support	34.6	(0.5)	34.1	34.1	34.1	-
Capital Outlay Construction	180.2	(6.1)	174.1	174.1	174.1	-
Capital Outlay Right-of-Way	1.5	(0.9)	0.6	0.5	0.6	-
Project Reserves	1.5	(0.5)	1.0	-	1.0	-
<b>Total</b>	<b>217.8</b>	<b>(8.0)</b>	<b>209.8</b>	<b>208.7</b>	<b>209.8</b>	<b>-</b>
<b>I-880/SR-92 Interchange Reconstruction</b>						
Capital Outlay Support	28.8	34.6	63.4	55.4	63.4	-
Capital Outlay Construction						
BATA Funding	85.2	66.2	151.4	109.1	151.4	-
Non-BATA Funding	9.6	-	9.6	-	9.6	-
Subtotal	94.8	66.2	161.0	109.1	161.0	-
Capital Outlay Right-of-Way	9.9	7.0	16.9	17.4	17.4	0.5
Project Reserves	0.3	3.4	3.7	-	3.2	(0.5)
<b>Total</b>	<b>133.8</b>	<b>111.2</b>	<b>245.0</b>	<b>181.9</b>	<b>245.0</b>	<b>-</b>
<b>Bayfront Expressway Widening</b>						
Capital Outlay Support	8.6	(0.2)	8.4	8.3	8.4	-
Capital Outlay Construction	26.5	(1.5)	25.0	24.9	25.0	-
Capital Outlay Right-of-Way	0.2	-	0.2	0.2	0.2	-
Project Reserves	0.8	(0.3)	0.5	-	0.5	-
<b>Total</b>	<b>36.1</b>	<b>(2.0)</b>	<b>34.1</b>	<b>33.4</b>	<b>34.1</b>	<b>-</b>



## Appendix C: Regional Measure 1 Program Cost Detail (\$ Millions) Cont.

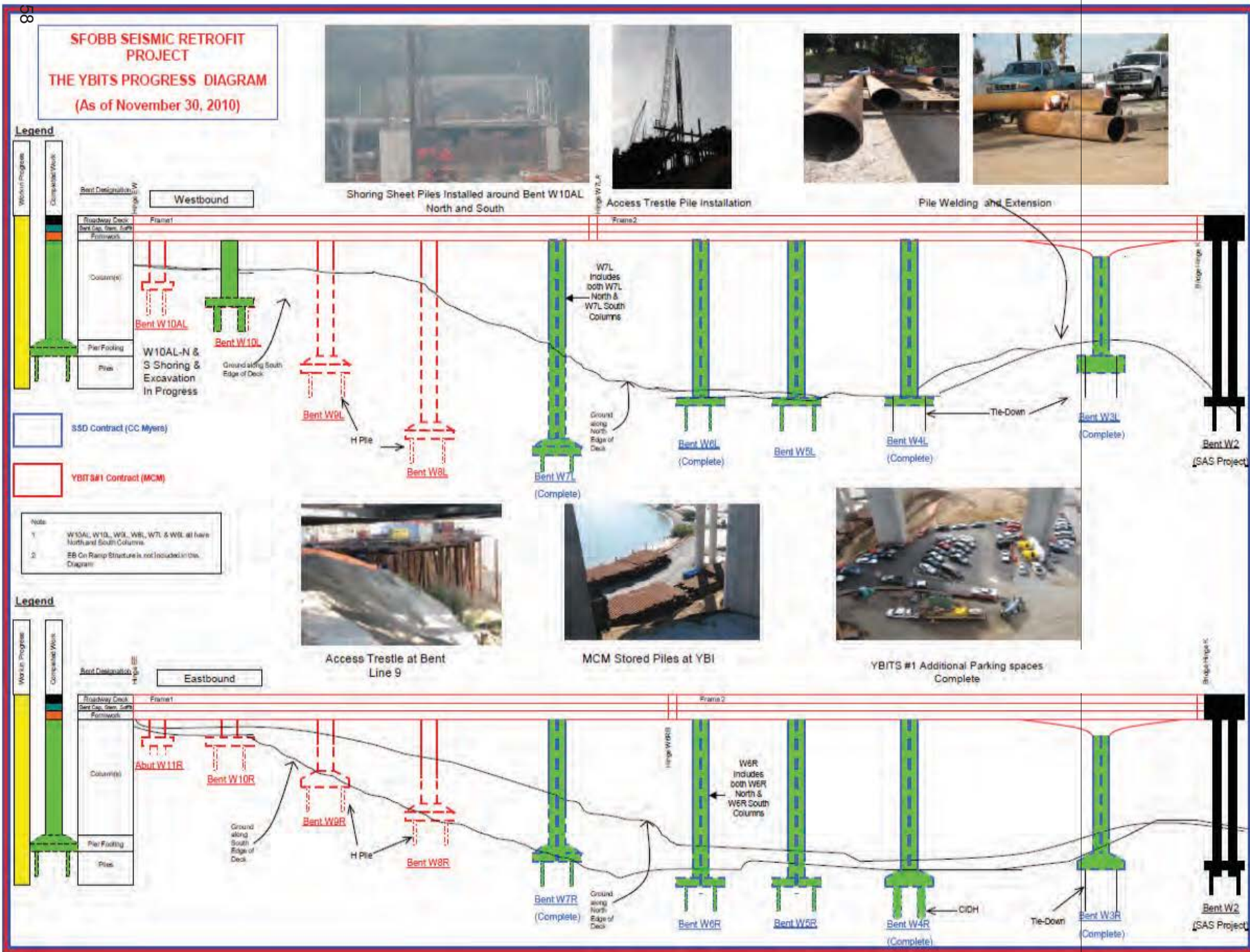
Contract	AB 144 / SB 66 Budget (07/2005)	Approved Changes	Current Approved Budget (11/2010)	Cost to Date (11/2010)	Cost Forecast (11/2010)	At- Completion Variance
a	c	d	e = c + d	f	g	h = g - e
<b>US 101/University Avenue Interchange Modification</b>						
Capital Outlay Support	-	-	-	-	-	-
Capital Outlay Construction	3.8	-	3.8	3.7	3.8	-
<b>Total</b>	<b>3.8</b>	<b>-</b>	<b>3.8</b>	<b>3.7</b>	<b>3.8</b>	<b>-</b>
<b>Subtotal BATA Capital Outlay Support</b>	<b>358.3</b>	<b>61.6</b>	<b>419.9</b>	<b>411.7</b>	<b>420.4</b>	<b>0.5</b>
<b>Subtotal BATA Capital Outlay Construction</b>	<b>1,569.8</b>	<b>215.3</b>	<b>1,785.1</b>	<b>1,712.2</b>	<b>1,785.1</b>	<b>-</b>
<b>Subtotal Capital Outlay Right-of-Way</b>	<b>42.5</b>	<b>5.9</b>	<b>48.4</b>	<b>45.0</b>	<b>48.9</b>	<b>0.5</b>
<b>Subtotal Non-BATA Capital Outlay Support</b>	<b>14.0</b>	<b>4.0</b>	<b>18.0</b>	<b>17.6</b>	<b>18.0</b>	<b>-</b>
<b>Subtotal Non-BATA Capital Outlay Construction</b>	<b>92.4</b>	<b>9.5</b>	<b>101.9</b>	<b>82.9</b>	<b>102.0</b>	<b>0.1</b>
<b>Project Reserves</b>	<b>35.6</b>	<b>(2.5)</b>	<b>33.1</b>	<b>-</b>	<b>32.0</b>	<b>(1.1)</b>
<b>Total RM1 Program</b>	<b>2,112.6</b>	<b>293.8</b>	<b>2,406.4</b>	<b>2,269.4</b>	<b>2,406.4</b>	<b>-</b>
<b>Notes:</b>						
1 Richmond-San Rafael Bridge Trestle, Fender, and Deck Joint Rehabilitation Includes Non-TBSRA Expenses for EA 0438U_ and 04157_						
2 San Mateo-Hayward Bridge Widening includes EA's 00305_,04501_,04503_,04504_,04504_,04505_,04506_,04507_,04508_,04509_,27740_,27790_,04860_						



Overview of Yerba Buena Island Transition Structures # 1 and  
Constructed Yerba Buena island Detour



# Appendix D: Progress Diagrams Yerba Buena Island Transition Structures





# Appendix D: Progress Diagrams (cont.) Antioch Bridge

## Antioch Bridge Seismic Retrofit Project EA: 1A5214

Updated: 12/6/2010

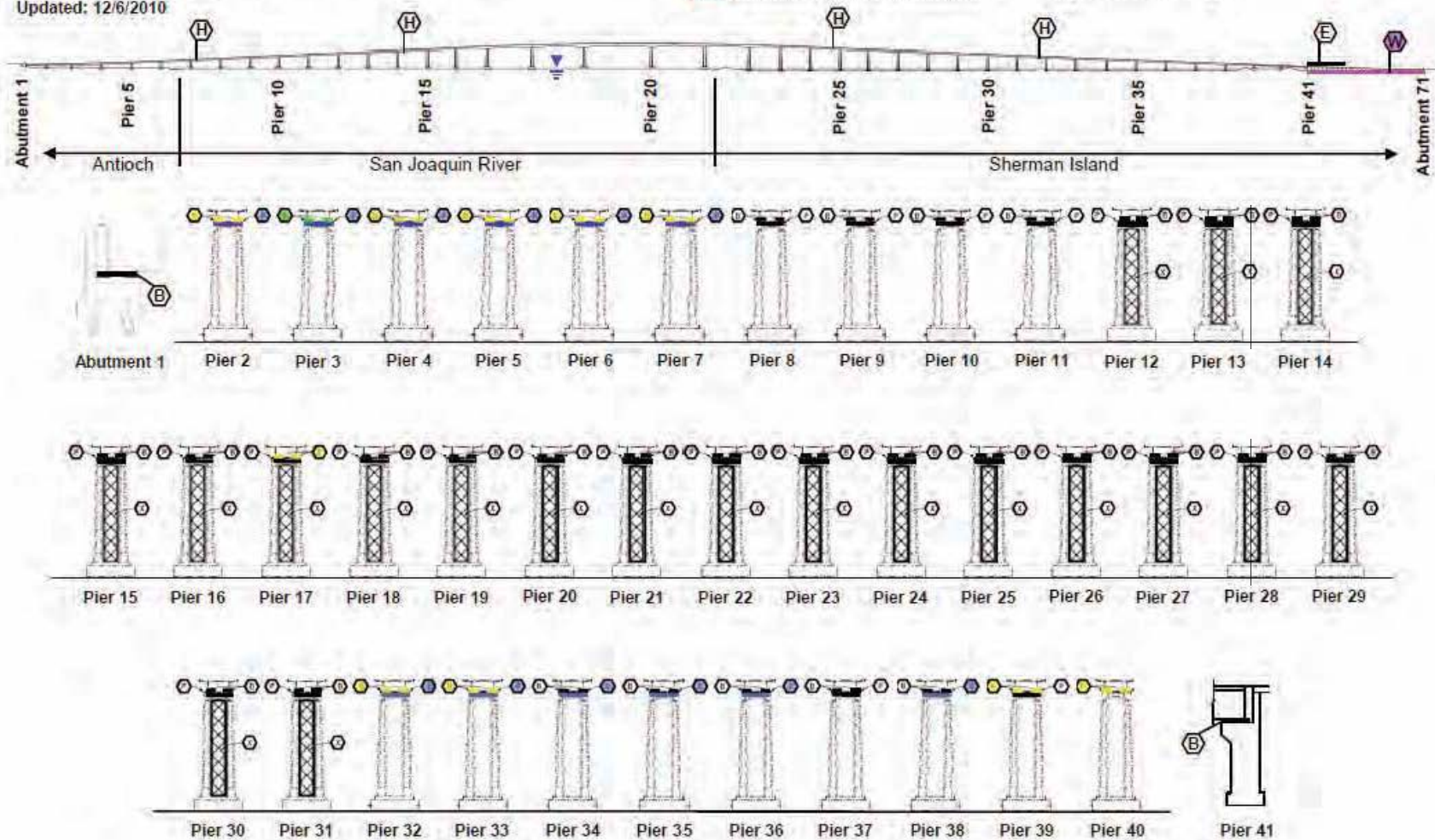
Bearing Fabrication Status

Type I: 2 of 12

Type II: 20 of 70

- Fabrication Complete
- Installation Complete
- Concrete Pedestal Complete
- Coring/Post-Tensioning Complete
- Hinge Retrofit Complete
- Curtain Wall Removal Complete

- X Steel Cross Bracing Between Columns
- P Bentcap Post-Tensioning
- B Bearing Replacement
- H Hinge Retrofit
- W Existing Curtain Wall Removal
- E Column Casing



(Piers Not Shown To Scale)

## Appendix E: Project Progress Photographs

### Self-Anchored Suspension Bridge Fabrication



SAS Traveler Rail Fabrication



SAS Bike Path Fabrication





SAS Lift 13 Segment Assembly



SAS Tower Head Component Plates









Aerial View of Yerba Buena Island Detour and Existing Bridge and Roadway Box Installation Progress



## Appendix E: Project Progress Photographs

### Self-Anchored Suspension Bridge Field Work



Offloading SAS Lift 3 Shafts



Tower Lift 3





Base and Lift 1 Shafts

## Appendix E: Project Progress Photographs

### 92/880 Interchange



GRE Work in Progress at Southwest Quadrant of the 92/880 Interchange



Bent 3 of WSCONN Bridge





92/880 Interchange Progress



Drainage Works on the Old Hesperian Off Ramp



## Appendix F: Glossary of Terms

### Glossary of Terms

**AB144/SB 66 BUDGET:** The planned allocation of resources for the Toll Bridge Seismic Retrofit Program, or subordinate projects or contracts, as provided in Assembly Bill 144 and Senate Bill 66, signed into law by Governor Schwarzenegger on July 18, 2005 and September 29, 2005, respectively.

**BATA BUDGET:** The planned allocation of resources for the Regional Measure 1 Program, or subordinate projects or contracts as authorized by the Bay Area Toll Authority as of June 2005.

**APPROVED CHANGES:** For cost, changes to the AB144/SB 66 Budget or BATA Budget as approved by the Bay Area Toll Authority Commission. For schedule, changes to the AB 144/SB 66 Project Complete Baseline approved by the Toll Bridge Program Oversight Committee, or changes to the BATA Project Complete Baseline approved by the Bay Area Toll Authority Commission.

**CURRENT APPROVED BUDGET:** The sum of the AB144/SB66 Budget or BATA Budget and Approved Changes.

**COST TO DATE:** The actual expenditures incurred by the program, project or contract as of the month and year shown.

**COST FORECAST:** The current forecast of all of the costs that are projected to be expended so as to complete the given scope of the program, project, or contract.

**AT COMPLETION VARIANCE or VARIANCE (cost):** The mathematical difference between the Cost Forecast and the Current Approved Budget.

**AB 144/SB 66 PROJECT COMPLETE BASELINE:** The planned completion date for the Toll Bridge Seismic Retrofit Program or subordinate projects or contracts.

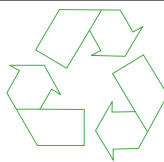
**BATA PROJECT COMPLETE BASELINE:** The planned completion date for the Regional Measure 1 Program or subordinate projects or contracts.

**PROJECT COMPLETE CURRENT APPROVED SCHEDULE:** The sum of the AB144/SB66 Project Complete Baseline or BATA Project Complete Baseline and Approved Changes.

**PROJECT COMPLETE SCHEDULE FORECAST:** The current projected date for the completion of the program, project, or contract.

**SCHEDULE VARIANCE or VARIANCE (schedule):** The mathematical difference expressed in months between the Project Complete Schedule Forecast and the Project Complete Current Approved Schedule.

**% COMPLETE:** % Complete is based on an evaluation of progress on the project, expenditures to date, and schedule.



100% Recyclable

This document, including the coil binding, is 100% recyclable

*The information in this report is provided in accordance with California Government code Section 755. This document is one of a series of reports prepared for the Bay Area Toll Authority (BATA)/Metropolitan Transportation Commission (MTC) for the Toll Bridge Seismic Retrofit and Regional Measure 1 Programs. The contract value for the monitoring efforts, technical analysis, and field site works that contribute to these reports, as well as the report preparation and production is \$1,574,873.73.*







Shear-Leg Barge Crane Lifting Roadway Box 9 Westbound into Place





## *Memorandum*

**TO:** Toll Bridge Program Oversight Committee (TBPOC)      **DATE:** January 26, 2011

**FR:** Dina Noel, Assistant Deputy Director Toll Bridge Program, CTC

**RE:** Agenda No. - 3c1  
Item- Yerba Buena Island Detour Contract Change Order No. 119-S4 –  
Additional Funds for Storm Water Pollution Prevention

---

**Recommendation:**  
**APPROVAL**

**Cost:**  
CCO 119-S4: \$500,000.00

**Schedule Impacts:**  
None

**Discussion:**

**CCO 119-S3 in the amount \$500,000** is necessary to pay for all outstanding costs incurred in the implementation of the contractor's storm water pollution prevention plan (SWPPP). The original Change Order No. 119, along with Supplements No. 1 through No. 3, provided compensation for the contractor to install and maintain Best Management Practices (BMP's) in accordance with their SWPPP from the beginning of 2008 through the end of the contract which was accepted at the end of October 2010.

Unanticipated costs were incurred due to the Department's new National Pollutant Discharge Elimination System (NPDES) General Permit which took effect in July 2010 and required the implementation of year round BMP's. In addition, the contract has submitted outstanding billings for past work which were not recognized under previous estimates. It is now anticipated that additional funding will be required to compensate the contractor for all work performed.

**Attachment(s):**

1. Draft CCO: 119-S4
2. Draft CCO Memorandum: 119-S4
3. YBID Implementation Strategy Memo, December 27, 2010



**CONTRACT CHANGE ORDER**

Change Requested by: Engineer

<b>CCO: 119</b>	<b>Suppl. No. 4</b>	<b>Contract No. 04 - 0120R4</b>	<b>Road SF-80-12.6/13.2</b>	<b>FED. AID LOC.:</b>
-----------------	---------------------	---------------------------------	-----------------------------	-----------------------

**To: CC MYERS INC**

You are directed to make the following changes from the plans and specifications or do the following described work not included in the plans and specifications for this contract. **NOTE: This change order is not effective until approved by the Engineer.**

Description of work to be done, estimate of quantities and prices to be paid. (Segregate between additional work at contract price, agreed price and force account.) Unless otherwise stated, rates for rental of equipment cover only such time as equipment is actually used and no allowance will be made for idle time. This last percentage shown is the net accumulated increase or decrease from the original quantity in the Engineer's Estimate.

**Extra Work at Force Account:**

Provide additional funds for the work specified under the original Change Order No. 119.

Estimated cost of Extra Work at Force Account .....\$500,000.00

Estimated Cost: Increase ☒ Decrease ☐ **\$500,000.00**

By reason of this order the time of completion will be adjusted as follows: 0 days

**Submitted by**

<b>Signature</b>	<b>Resident Engineer</b> JEANNIE BALDERRAMOS	<b>Date</b>
------------------	---	-------------

**Approval Recommended by**

<b>Signature</b>	<b>Acting Area Construction Manager</b> DEANNA VILCHECK	<b>Date</b>
------------------	--	-------------

**Engineer Approval by**

<b>Signature</b>	<b>Acting Area Construction Manager</b> DEANNA VILCHECK	<b>Date</b>
------------------	--	-------------

We the undersigned contractor, have given careful consideration to the change proposed and agree, if this proposal is approved, that we will provide all equipment, furnish the materials, except as may otherwise be noted above, and perform all services necessary for the work above specified, and will accept as full payment therefor the prices shown above.

**NOTE: If you, the contractor, do not sign acceptance of this order, your attention is directed to the requirements of the specifications as to proceeding with the ordered work and filing a written protest within the time therein specified.**

**Contractor Acceptance by**

<b>Signature</b>	<b>(Print name and title)</b>	<b>Date</b>
------------------	-------------------------------	-------------

**CONTRACT CHANGE ORDER MEMORANDUM**

DATE: 12/13/2010 Page 1 of 1

TO: MIKE FORNER / DEANNA VILCHECK			FILE: E.A. 04 - 0120R4	
FROM: JEANNIE BALDERRAMOS			CO-RTE-PM SF-80-12.6/13.2	
FED. NO.				
CCO#: 119	SUPPLEMENT#: 4	Category Code: AXZZ	CONTINGENCY BALANCE (incl. this change) <b>\$10,241,836.08</b>	
COST: \$500,000.00 INCREASE <input checked="" type="checkbox"/> DECREASE <input type="checkbox"/>			HEADQUARTERS APPROVAL REQUIRED? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
SUPPLEMENTAL FUNDS PROVIDED: \$0.00			IS THIS REQUEST IN ACCORDANCE WITH ENVIRONMENTAL DOCUMENTS? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
CCO DESCRIPTION: Additional Funding for SWPPP			PROJECT DESCRIPTION: CONSTRUCT ROUTE 80 TEMP BYPASS STRUCTURE	
Original Contract Time: <b>475</b> Day(s)	Time Adj. This Change: <b>0</b> Day(s)	Previously Approved CCO Time Adjustments: <b>0</b> Day(s)	Percentage Time Adjusted: (including this change) <b>0</b> %	Total # of Unreconciled Deferred Time CCO(s): (including this change) <b>0</b>

**THIS CHANGE ORDER PROVIDES FOR:**

Additional funding for installing and maintaining Best Management Practices in accordance with Section 10-1.02, "Water Pollution Control" of the contract Special Provisions and with the Department's new National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance.

The original Change Order No. 119 provided for the contractor to be compensated on a force account basis to install and maintain Best Management Practices (BMP's) in accordance with their approved Storm Water Pollution Prevention Plan. Supplement No. 1 through No. 3 to Change Order No. 119 provided additional funds for this work to extend through the 2009/2010 winter and into the 2010/2011 winter.

Additional cost have been incurred due to the implementation of the Department's new NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance (Order No. 2009-009-DWQ), Construction General Permit which became effective on July 1, 2010. Change Order No. 256 was issued to implement this permit with the costs associated with the implementation being paid under Change Order No. 119. The contract has also submitted outstanding billings for past work, which were not recognized previously. It is now anticipated that additional funding will be required to fund the work performed.

The work shall be compensated as extra work at force account at an estimated cost of \$500,000, which shall be financed from the contract contingency funds. A cost analysis is on file.

No adjustment of contract time is warranted, as the change will not affect the controlling operation.

Maintenance concurrence is not required, as the work doesn't affect any permanent roadway features.

<b>CONCURRED BY:</b>			<b>ESTIMATE OF COST</b>		
Construction Engineer: Jeannie Balderramos, RE	Date		THIS REQUEST		TOTAL TO DATE
Bridge Engineer:	Date		ITEMS	\$0.00	(\$78,936.00)
Project Engineer: Jaime Gutierrez, PE	Date		FORCE ACCOUNT	\$500,000.00	\$2,950,000.00
Project Manager: Ken Terpstra, PM	Date		AGREED PRICE	\$0.00	\$10,000.00
FHWA Rep.:	Date		ADJUSTMENT	\$0.00	\$7,875.00
Environmental:	Date		<b>TOTAL</b>	<b>\$500,000.00</b>	<b>\$2,888,939.00</b>
Other (specify):	Date		<b>FEDERAL PARTICIPATION</b>		
Other (specify):	Date		<input type="checkbox"/> PARTICIPATING <input type="checkbox"/> PARTICIPATING IN PART <input checked="" type="checkbox"/> NONE <input type="checkbox"/> NON-PARTICIPATING (MAINTENANCE) <input type="checkbox"/> NON-PARTICIPATING		
District Prior Approval By:	Date		FEDERAL SEGREGATION (if more than one Funding Source or P.I.P. type)		
HQ (Issue Approve) By: Larry Salhaney, HQ CCO Engine	Date		<input type="checkbox"/> CCO FUNDED PER CONTRACT <input type="checkbox"/> CCO FUNDED AS FOLLOWS		
Resident Engineer's Signature:	Date		FEDERAL FUNDING SOURCE    PERCENT _____ _____ _____		

**Yerba Buena Island Detour, Contract No. 04-0120R4**  
**Contract Change Order Implementation Strategy**  
**December 27, 2010**

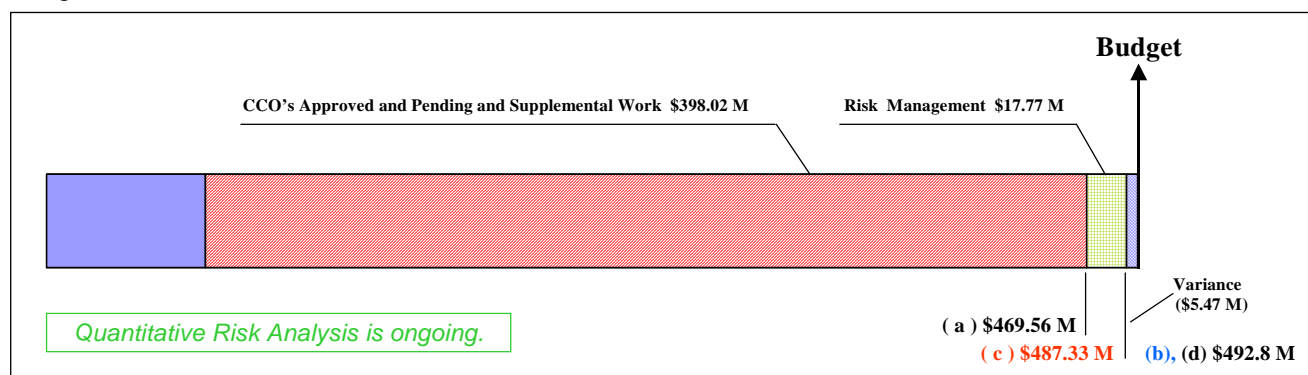
DRAFT

Yerba Buena Island Detour (Contract 04-0120R4)			
Contract Award:	March 10 <sup>th</sup> , 2004	Suspension Days:	302 Working Days
Original Working Days:	475 Working Days	Contract Extensions:	1660 Working Days
Original Contract Completion:	July 27th, 2005	Actual Contract Completion:	October 20, 2010

## Introduction

Two memos were developed to outline a strategy for a revised YBID project that enhanced YBID viaduct design, developed tie-in design (east and west) in-house, improved the retrofit of the YBI viaduct (replacing the top deck of the viaduct rather than retrofitting in place) and advanced and incorporated select YBITS foundation work. The two memos are "San Francisco-Oakland Bay Bridge Corridor Schedule Mitigation – Strategy for South-South Detour Contract Completion" issued December 14, 2006, and "Recommendation to Construct Select Yerba Buena Island Transition Structure Foundations by Contract Change Order" issued on December 25, 2006. This strategy will result in substantial increases in the cost of the YBID project.

As approved at the June 2009 TBPOC meeting the revised budget for the YBID project is 492.8M. This figure was established in May 2009 using all available information to date. This figure is within the projects approved budget balance beam, as shown below:



## Scope of Work for YBID

The revisions to the original scope of work currently associated with the Yerba Buena Island Detour Project have been assigned into the following categories with their associated estimated cost:

Category	Scope of Work	Current Budget (June 2009)	In Progress Status Update from June 09 Approved Budget	
			Current	Delta
(0)	Original Bid Items, Baseline CCOs (1 through 48), and State Furnished Materials	\$83.7	\$83.7	\$0
(1)	YBID New Viaduct	\$40.1	\$42.7	\$2.6
(2a)	West Tie-In Existing Viaduct Phase 1	\$40.1	\$40.1	\$0.0
(2b)	West Tie-In Phase 2	\$21.8	\$17.9	(\$3.9)
(3)	East Tie-In	\$140.0	\$143.2	\$3.2
(4)	YBI Transition Structures Advance Foundations	\$104.3	\$105.1	\$0.8
(5)	Administrative Issues and General CCOs	\$37.8	\$51.0	\$13.2
<b>Subtotal</b>		<b>\$467.8</b>	<b>\$483.7</b>	<b>\$15.9</b>
<b>Contingency</b>		<b>\$25.0</b>	<b>\$9.1</b>	
<b>Approved Budget</b>		<b>\$492.8</b>		

Contract payments as of January 20, 2011: \$461.2M.

As shown, the current status of CCOs required to modify the original scope of the YBID work as defined in Categories 1 through 5 is \$400.0M. The status of each category of work is discussed in the succeeding pages of this report.



**Yerba Buena Island Detour, Contract No. 04-0120R4**  
**Contract Change Order Implementation Strategy**  
**December 27, 2010**

DRAFT

**Bid Items, Baseline CCOs, & State Furnished Material**

0

The break down of Category (0) is as follows:

Original Contract Amount	\$ 71.2 million
Baseline CCOs (1 through 48)	\$ 12.1 million
State Furnished Materials	\$ 0.4 million
<b>Total</b>	<b>\$ 83.7 million</b>

**Baseline Contract Change Orders (1 through 48)**

CCO #	Description	Executed Date	Cost
1	Flagging and Traffic Control	5/13/2004	\$100,000.00
1S1	Additional Funds for Flagging and Traffic Control	2/9/2007	\$200,000.00
2	Bidder Compensation	5/8/2004	\$1,575,000.00
3	Partnering	9/7/2004	\$25,000.00
4	DRB	9/7/2004	\$100,000.00
5	Federal Trainee Program	11/12/2004	\$20,000.00
5S1	Non-Journey Person Training	3/10/2005	\$50,000.00
6	Removal of DBE/SBE Monitoring	2/10/2005	\$0.00
7	Sampling and Analysis Work	8/30/2004	\$30,000.00
8	SWPPP Maintenance Sharing	8/30/2004	\$75,000.00
9	Additional Photo Survey/Public Relations	9/14/2004	\$50,000.00
10	Temporary Shuttle Van Service	7/16/2004	\$650,000.00
10S1	Additional Funds for Temporary Shuttle Van Service	6/23/2005	\$100,000.00
10S2	Additional Funds for Temporary Shuttle Van Service	1/12/2007	\$500,000.00
11	Utility Potholing	9/14/2004	\$100,000.00
12	Just-In-Time Training (RSC Pavement)	2/10/2005	\$5,000.00
13	PMIV Document Management System	11/3/2004	\$486,743.50
14	Temporary Suspension	5/19/2004	\$0.00
15	Archaeology Investigation	7/19/2004	\$30,000.00
15S1	Additional Funds for Archaeology Investigation	4/22/2005	\$15,000.00
16	Roadway Profile at WTI	Voided	N/A
17	Modify Drainage at G4 Entry Vault	10/24/2006	\$108,217.45
18	Access Control Measures	9/8/2004	\$50,000.00
19	EDR1 Alignment Modification	5/12/2005	\$0.00
20	A490 Bolts	10/23/2006	\$0.00
21	Removal /Disposal of Stairway	4/13/2005	\$14,060.00
22	Clean Stairs and Walkways	5/24/2005	\$35,000.00
23	Shared Field Data System (ShareArchive)	Voided	N/A
24	East and West Tie-In Temporary Suspension	2/1/2005	\$2,181,467.40
24S1	Read Inclinometer/Adjust Equipment Costs	10/18/2005	\$29,782.99
<b>Total for Baseline Contract Change Orders</b>			

CCO #	Description	Executed Date	Cost
24S2	Temporary Suspension Partially Extended	5/2/2006	\$4,812,631.58
24S3	Contract Days Extension/TRO Compensation	Voided	N/A
25	Bent 48, 49R, 52R Outside Boundary	3/24/2005	(\$19,000.00)
26	Bent 48 Articulation	4/22/2005	\$0.00
27	Bent 52L Footing Conflict	1/19/2006	\$94,386.51
28	Hydroseed Around W2 Columns	3/24/2005	\$20,000.00
29	Replacement of Surveillance Camera	3/24/2005	\$3,542.00
30	Additional Elastic Response Analysis	5/31/2005	\$10,700.00
31	Soil Analysis Outside Plan Limits	6/27/2005	\$20,000.00
32	SFPUC Permit Specification Change	5/17/2005	\$0.00
33	Design Enhancements	Voided	N/A
34	Pole Structure Welding Specification Revision	9/30/2005	\$0.00
35	Revision of East Tie-In Design Criteria	Voided	N/A
36*	Extend Limits of Viaduct Demolition	Voided	N/A
37	4 Hr Emergency Travel Way	5/13/2005	\$22,500.00
37S1	Emergency Travel Way Falsework	Voided	N/A
38	Revision of West Tie-In Design Criteria	8/4/2005	\$0.00
39	Provide Shuttle Service to USCG	6/27/2005	\$10,000.00
40	Sewer Pipe Material Change	9/26/2005	\$1,561.95
41	Bent 49L Utility Relocation	Voided	N/A
42	Bent 48R Pile Load Test	9/12/2005	\$20,000.00
42S1	Bent 52R Pile Load Test	12/15/2005	\$5,000.00
43	Material On Hand Specification Change	9/16/2005	\$75,953.88
43S1	Addition of YBITS Advance to Material On Hand	Voided	N/A
44	Electrical Call Box Relocation		\$47,480
45	Additional SWPPP	2/21/2006	\$250,000.00
46	Southgate Road Reopening	3/8/2006	\$50,000.00
47	Hazardous/Non-Hazardous Soil Removal	12/15/2005	\$100,000.00
48	Buried Man-Made Objects	12/15/2005	\$50,000.00
			<b>\$12,107,527</b>

- The scope of work for CCO No. 36 was completed and compensated for under the larger scope of CCO No. 76.

**Yerba Buena Island Detour, Contract No. 04-0120R4**  
**Contract Change Order Implementation Strategy**  
**December 27, 2010**

DRAFT

**SSD New Viaduct**

1

Progress of Work

Fabrication of the structural steel truss took place at Dongkuk S&C in South Korea. With the placement of traffic onto the detour, the construction of the Viaduct is substantially complete. Minor punch list work remains.

Status of Contract Change Orders: YBID New Viaduct:

CCO	Method of Payment	Description	HQ Status	TBPOC Status	CCO Status	Current Estimate/ Actual Cost	Change from June 09 Approved Budget
49	LS	Stringer and Floor Beam Design Study	N/A	N/A	Executed 5/2/2006	\$109,183	
49S1	FA	Truss Design Modifications (Changes to Stringer and Floor Beam Connections)	I&A 12/08/06	N/A	Executed 8/17/2006	\$150,000	
49S2	FA		I&A 12/08/06	N/A	Executed 12/18/2006	\$100,000	
Subtotal (CCO #49 and Supplements)						\$359,182	
50	FA	Stand Alone Viaduct Design	N/A	N/A	Executed 5/8/2006	\$325,000	\$60,000
50S1	FA		I&A 9/21/06	N/A	Executed 10/16/2006	\$300,000	
50S2	FA		I&A 12/08/06	N/A	Executed 12/18/2006	\$100,000	
50S3	FA		I&A 2/09/07	N/A	Executed 2/13/07	\$175,000	
50S4	FA		I&A 12/21/09	N/A	Executed 12/22/09	\$30,000	
50S5	FA		I&A 05/06/10	N/A	Executed 5/7/10	\$30,000	
Subtotal (CCO #50 and Supplements)						\$960,000	
54	LS	Deck Drainage	N/A	N/A	Executed 5/2/07	\$8,000	
55	LS	Viaduct Fabricator Change (SGT Closeout)	I&A 7/08/07	Approved 6/27/07	Executed 8/7/07	\$5,665,330	
55S1	LS	SGT Fabrication Closeout - Dongkuk Materials	I&A 1/24/08	Approved 3/5/08	Executed 3/17/08	\$980,600	
59	LS	Water Blast Rebar Cages	N/A	N/A	Executed 2/22/07	\$5,000	\$15,000
59S1	LS	Additional funds, Water Blast Rebar Cages	N/A	N/A	Executed 11/24/08	\$5,000	
59S2	FA	Viaduct Rebar Cleaning	N/A	N/A	Executed 2/16/10	\$15,000	
60	LS	Construction of Bent Caps	I&A 6/13/07	Approved 6/27/07	Executed 6/18/07	\$7,435,950	
67	FA	Viaduct/ETI Interface Modifications (Design Cost)	I&A 5/14/07	N/A	Executed 9/27/07	\$800,000	
79	LS	Fabrication Cost for Viaduct Design Changes July '05 - October '06	I&A 7/19/07	N/A	Executed 8/7/07	\$803,400	
79S1	LS	Fabrication Cost for Viaduct Design Changes - July 05-Oct 06	I&A 6/13/08	N/A	Executed 8/4/08	\$75,860	
80	LS	Erection Costs for Viaduct Design Changes through October 2006	N/A	Approved 1/31/08	Executed 2/20/08	\$6,912,200	
82	FA	OGAC Paving and Expansion Dams	I&A 8/10/09	N/A	Executed 10/8/09	\$547,680	\$556,386
82S1	FA	Add funds AC Deck Grinding	I&A 12/17/09	N/A	Executed 12/22/09	\$120,000	
82S2	FA	Add funds AC Deck Grinding	I&A	N/A	Executed 10/7/10	\$35,000	
213	LS	Bent 48 Expansion Joint & Drainage Escalation	I&A 7/23/09	N/A	Executed 8/06/09	\$488,100	

**Yerba Buena Island Detour, Contract No. 04-0120R4**  
**Contract Change Order Implementation Strategy**  
**December 27, 2010**

DRAFT

85	LS	Design of 300mm Waterline Relocation	N/A	N/A	Executed 3/17/08	\$12,480	
87	LS	Viaduct Shipping Escalation Costs	I&A 7/24/07	N/A	Executed 10/2/07	\$534,570	
87S1	LS	Viaduct Shipping Escalation Costs	I&A 1/14/08	N/A	Executed 1/30/08	\$200,000	
88	LS	Viaduct Fabrication Delays	I&A 7/19/07	N/A	Executed 8/7/07	\$954,460	
88S1	LS	Viaduct Fabrication Delays	I&A 8/22/07	N/A	Executed 9/27/07	\$776,630	
98	FA/LS	Viaduct Steel Storage and Handling Cost	I&A 5/30/08	N/A	Executed 6/18/08	\$845,370	
98S1	FA	Add Funds Steel Storage and Handling Cost	I&A 12/17/09	N/A	Executed 12/22/09	\$151,000	\$151,000
99	LS	Viaduct Erection Costs (Post Oct. 2006)	I&A 4/17/08	N/A	Executed 5/22/08	\$862,614	
100	FA	Viaduct Fabrication Costs (Post Oct. 2006)	I&A 1/22/08	N/A	Executed 1/28/08	\$650,000	
105	FA/LS	Dongkuk Fabrication and Temp Bracing Fabrication Costs (July 2007 Plans)	I&A 4/2/08	Approved 4/3/08	Executed 4/17/08	\$2,140,640	
105S1	FA	Dongkuk Fabrication and Temp Bracing Fabrication (July 2007 Plans)- Added Funds	I&A 7/21/10	Approved 7/13/10	Executed 7/23/10	\$250,000	\$250,000
106	-	CCO Voided...previous scope of work was incorporated into CCO 105	-	-	-	-	-
107	LS	Furnish and Drive Erection Tower Falsework Piles	I&A 8/07/08	N/A	Executed 10/02/08	\$855,190	
111	FA/LS	USCG Parking Replacement and Protection	N/A	N/A	Executed 3/17/08	\$163,223	
111S1	LS	Additional costs USCG Parking Lot	N/A	N/A	Executed 6/30/08	\$8,940	
111S2	LS	Additional costs USCG Car Port Canopy	N/A	N/A	Executed 4/23/09	\$120,000	\$120,000
111S3	LS	Additional costs USCG Car Port Canopy	N/A	N/A	Executed 9/21/09	\$80,000	\$80,000
115	FA	Third VIA Shipping for CCO #67 July 07 plans	I&A 5/06/08	N/A	Executed 5/22/08	\$850,000	
128	LS	60% of Waterline Relocation and Viaduct Connection Modifications	I&A 8/18/09	N/A	Executed 10/8/09	\$533,123	(\$33,789)
128S1	LS	60 % of Waterline Design Mods and Impact Costs	N/A	N/A	Executed 1/20/10	\$145,428	
215	FA	Underground Waterline Excavation Costs	N/A	N/A	Executed 10/8/09	\$41,250	
215S1	FA	Underground Waterline Excavation- Add Funds	I&A 7/6/10	N/A	Executed 7/7/10	\$110,000	
133	-	Lightweight Conc. Mix Design Spec Change	N/A	N/A	Executed 9/12/08	\$0	
134	LS	60% of Project Wide Electrical Changes	7/7/09	Approved 5/7/09	Executed 8/25/09	\$1,380,554	
196	LS	Revised Electrical Lighting	N/A	N/A	Executed 7/28/09	\$35,944	(\$174,056)
135	LS	Rebar Deck Escalation Costs	I&A 11/09/08	N/A	Executed 1/28/09	\$995,100	
136	FA/LS	Provide additional alternate entrance access to USCG Base	N/A	N/A	Executed 9/23/08	\$74,540	
136S1	FA/LS	Add Funds for access to USCG Base	N/A	N/A	Executed 1/6/09	\$100,000	\$100,000
136S2	FA/LS	Add Funds for access to USCG Base	I&A 3/27/09	N/A	Executed 3/30/09	\$400,000	\$400,000
136S3	FA/LS	Add Funds for access to USCG Base	I&A 9/22/09	N/A	Executed 3/30/09	\$350,000	\$350,000
138	LS	Waterline Relocation for Fire Hydrant (Conflicts with Span 49 Falsework)	N/A	N/A	Executed 9/22/09	\$278,200	
148	FA	USCG Road Canopy below Viaduct	I&A 8/27/08	N/A	Executed 9/23/08	\$500,000	
150	LS	Bent 52A Sewer Relocation	I&A 4/20/09	N/A	Executed 4/23/09	\$242,330	\$242,330



**Yerba Buena Island Detour, Contract No. 04-0120R4**  
**Contract Change Order Implementation Strategy**  
**December 27, 2010**

DRAFT

152	LS	Relocate USCG Road for steel erection FW Towers at Span 51	I&A 1/06/09	N/A	Executed 2/4/09	\$336,420	
156	LS	Span 49 F/W Conflict w/ USCG Utilities	N/A	N/A	Executed 9/23/08	\$180,820	
163	LS	Viaduct Grade Conflict	N/A	N/A	Executed 6/12/09	\$83,202	(\$16,798)
173	LS	Viaduct Escalation	I&A 4/6/10	N/A	Executed 05/04/10	\$740,890	(\$259,110)
178	LS	Type 7 Fence at Barrier	I&A 7/31/09	N/A	Executed 8/25/09	\$457,356	\$374,176
178 S1	LS	Type 7 Fence at Barrier	I&A 4/12/10	N/A	Executed 05/17/10	\$47,240	\$47,240
178 S2	LS	Type 7 Fence at Barrier	I&A 6/25/10	N/A	Executed 7/14/10	\$207,690	\$207,690
198	Credit/LS	60 % of Job Wide Stripping Plan (Viaduct Portion)		N/A	Executed 12/14/09	\$179,678	\$89,678
199	Credit	CCO Deleted	-	-	-	-	(\$100,000)
201	LS	Viaduct Steel Erection USCG Protective Netting	N/A	N/A	Executed 10/8/09	\$156,350	(\$73,650)
209	LS	Viaduct USCG Flagging & Delays (Span 51)	N/A	N/A	Executed 8/13/09	\$92,810	(\$47,190)
210	LS	Steel Erection Close Out	N/A	N/A	Executed 1/20/10	\$147,230	\$22,230
226	FA	Manhole Covers	N/A	N/A	Executed 2/8/10	\$30,000	\$30,000
238	FA	Additional Scuppers	N/A	N/A	Executed 1/20/10	\$100,000	\$100,000
242	FA	Vertical Clearance Signing	N/A	N/A	Executed 04/19/10	\$30,000	\$30,000
245	LS	OH Sign Illumination	N/A	N/A	Executed 05/19/10	\$5,220	\$5,220
<b>Current Forecast for YBID New Viaduct</b>						<b>\$42,652,795</b>	<b>\$2,526,357</b>

Budget Status

The Viaduct portion of the YBID was bid at \$26.7M. The projected additional costs in the December 14, 2006 Strategy Memorandum were estimated to be \$9M. The June 2009 revised additional cost estimate is \$40.1M with a current projection of \$42.7M. CCOs executed to date are \$42.7M.

West Tie-In

Phase 1

2a

Progress of Work

Phase 1 work was substantially complete with the move in of the Structure on September 03, 2007. Miscellaneous electrical and drainage work remain. WB On-ramp reopened on August 8, 2008 and was subsequently re-closed on September 8, 2009 to accommodate the demolition of the old structure.

Status of Contract Change Orders: West Tie-In Existing Viaduct (Phase 1)

CCO	Method of Payment	Description	HQ Status	TBPOC Status	CCO Status	Current Estimate/ Actual Cost	Change from June 09 Approved Budget
58	FA	Bridge Removal Plan	N/A	N/A	Executed 11/21/06	\$60,000	
58 S1	FA	Bridge Removal Plan	N/A	N/A	Executed 7/05/07	\$40,000	
61	FA	Advance Engineering (Work Plans and Submittals), Site Prep (Ramp Closures, Access Road), Civil Work (Grading), Structure Work (Material Procurement)	I&A 1/09/07	N/A	Executed 2/27/07	\$400,000	
61S1	LS/FA	Construction of Stage 1 Area and Substructure	I&A 5/16/07	Approved 6/27/07	Executed 5/18/07	\$9,995,644	

**Yerba Buena Island Detour, Contract No. 04-0120R4**  
**Contract Change Order Implementation Strategy**  
**December 27, 2010**

DRAFT

66	FA	TMP – Video Equipment (WTI Phase 1)	N/A	N/A	Executed 7/20/07	\$175,000	
68	FA	Temporary Electrical Work	N/A	N/A	Executed 7/20/07	\$140,000	
68S1	FA	Temporary Electrical Work Stage 2, 3 & 4	I&A 12/02/07	N/A	Executed 10/31/07	\$510,000	
72	LS	Structure Work (Superstructure), and Temporary Shuttle Service	I&A 7/19/07	Approved 7/27/07	Executed 7/20/07	\$11,096,900	
76	LS	Labor Day Bridge Demolition and Move-In	I&A 7/19/07	Approved 7/27/07	Executed 7/20/07	\$2,240,300	
76S1	LS	Labor Day Bridge Move-In (Changeable Message Signs, Temporary Signs, Traffic Control, Bridge Removal, Bridge Move-In, Paving and Roadway Repairs, CCM Support Costs, City Traffic Officers)	I&A 8/28/07	Approved 8/24/07	Executed 9/27/07	\$10,144,140	
84	LS	Skid Track Foundations and Temporary Columns	I&A 7/27/07	Approved 7/27/07	Executed 7/31/07	\$3,980,000	
101	LS	Reconstruct Slab, West Bound On-ramp	I&A 4/02/08	N/A	Executed 4/17/08	\$846,140	
101S1	LS	WB Onramp Supplemental Work	I&A 1/06/09	N/A	Executed 2/4/09	\$149,560	
102	FA	Northside Drainage Work	N/A	N/A	Executed 4/4/08	\$60,000	\$76,578
102 S1	LS	Northside Drainage Work	N/A	N/A	Executed 7/15/09	\$48,818	
102 S2	FA	Northside Drainage Work – Add Funds	N/A	N/A	Executed 7/15/09	\$50,000	
102 S3	FA	Northside Drainage Work – Add Funds	N/A	N/A	Executed 6/22/10	\$30,000	
103	LS	Labor Day Weekend Closure Misc. Costs	N/A	N/A	Executed 2/20/08	\$173,140	
<b>Current Status for West Tie-In (Phase 1)</b>						<b>\$40,139,642</b>	<b>\$76,578</b>

Budget Status

The projected additional costs in the December 14, 2006 Strategy Memorandum were estimated to be \$40M. The June 2009 revised additional cost estimate is \$40.1M with a current projection of \$40.1M. CCOs executed to date are \$40.1M.

**West Tie-In**

**Phase 2**

**2b**

Progress of Work

With the placement of traffic onto the detour, Frames 1, 2, and 3 are substantially complete. Minor punch list work remains.

Status of Contract Change Orders: West Tie-In (Phase 2)

CCO	Method of Payment	Description	HQ Status	TBPOC Status	CCO Status	Current Estimate/ Actual Cost	Change from June 09 Approved Budget
62	LS	Construction of Phase 2 Foundations and Credits for Elimination of Bid Items 12 and 90	I&A 2/29/08	Approved 4/4/08	Executed 4/7/08	(\$4,649,850)	
200	FA	Shoring at Abutment 47A	N/A	N/A	Executed 11/19/09	\$50,000	(\$250,000)
71	LS	WTI Phase 2 Pile at Bent 46L/Slab Bridge Removal	I&A 7/24/07	N/A	Executed 7/20/07	\$384,130	
108	LS	Substructure	I&A 6/20/08	Approved 6/18/08	Executed 6/25/08	\$5,378,800	
117	FA	Surface Drainage (Southside)	N/A	N/A	Executed 1/6/09	\$150,000	
128	LS	20% of Waterline Relocation and Stringer Stiffeners	I&A 8/18/09	N/A	Executed 10/8/09	\$177,708	\$71,654
128S1	LS	20 % of Waterline Design Mods and Impact Costs	N/A	N/A	Executed 1/20/10	\$48,476	
134	LS	20% of Project Wide Electrical Changes	7/7/09	Approved 5/7/09	Executed 8/25/09	\$460,185	

**Yerba Buena Island Detour, Contract No. 04-0120R4**  
**Contract Change Order Implementation Strategy**  
**December 27, 2010**

DRAFT

196	LS	Revised Electrical Lighting	N/A	N/A	Executed 7/28/09	\$11,981	(\$58,019)
141	LS/FA	Superstructure Construction	I&A 11/13/08	Approved 11/18/08	Executed 11/25/08	\$13,200,000	
141S1	ACUP	Superstructure Construction Completion Incentive (Release of Frame 1 Bent Cap FW)	I&A 5/15/09	Approved 5/15/09	Executed 5/15/09	\$1,500,000	
143	LS/ID	Civil Work (EB Onramp and Mainline)	I&A 6/11/09	N/A	Executed 7/28/09	\$156,436	(\$3,618,566)
143S1	LS	Roadway AC Overrun	N/A	N/A	Executed 2/8/10	\$62,249	
161	LS	T7-Line Detour	I&A 11/10/08	N/A	Executed 11/25/08	\$403,965	
168	LS	Rebar H.S. Rod Modifications	N/A	N/A	Executed 03/22/10	\$147,390	(\$221,010)
208	LS	Concrete and Miscellaneous Changes	N/A	N/A	Executed 05/04/10	\$131,600	
198	Credit/ LS	20% of Job Wide Striping Plan (WTI Phase 2 Portion)		N/A	Executed 12/14/09	\$59,893	(\$10,212)
202	--	WTI K-rail Deletion and ETI K-rail plans	N/A	N/A	Executed 11/4/09	(\$42,000)	(\$42,000)
220	LS	Flashing Beacons and Additional Tunnel Lighting	N/A	N/A	Executed 11/19/09	\$198,000	\$198,000
221	FA	Barrier Rail Transition Cover Plate at B47		N/A	Executed 12/15/09	\$25,000	\$25,000
243	LS	Falsework Delay	N/A	N/A	Executed 05/19/10	\$22,510	\$22,510
251	LS	WTI Temporary Drainage System	N/A	N/A	Executed 7/16/10	\$50,930	\$50,930
<b>Current Status for West Tie-In (Phase 2)</b>						<b>\$17,927,402</b>	<b>(\$3,831,713)</b>

Budget Status

The Contractor's bid price for the West Tie-In was \$9.0M. Based on the Department's December 14, 2006 Strategy Memorandum, the costs associated with the Phase 2 West Tie-In work were estimated to be an additional \$13.0M. The June 2009 revised additional cost estimate is \$21.8M, with a current projection of \$17.9M. CCOs executed to date are \$17.9M.

**East Tie-In**

3

Progress of Work

Removal of the skid bent and restoration of the ETI area has been completed.

Status of Contract Change Orders: East Tie-In

CCO	Method of Payment	Description	HQ Status	TBPOC Status	CCO Status	Current Estimate/ Actual Cost	Change from June 09 Approved Budget
63	FA	Advance Engineering (Work Plans and Submittals)	I&A 8/22/07	N/A	Executed 9/27/07	\$800,000	
69	LS	Procurement of Pump/Control Panel for Pump Station Relocation	N/A	N/A	Executed 10/10/07	\$111,280	
69S1	LS	Construction for Pump and Control Panel for Relocated Pump Station	I&A 12/19/07	N/A	Executed 3/17/08	\$499,996	
69S2	LS	Sewer Pump Electrical Changes	I&A 2/25/09	N/A	Executed 4/08/09	\$8,953	
69S3	LS	Pump Station Access Road Changes	I&A	N/A	Executed 10/12/10	(\$73,930)	(\$73,930)
92	FA	ETI AT&T Fiber Optic Relocation	N/A	N/A	Executed 12/17/07	\$175,000	
93	LS/FA	Lead Paint Mitigation Existing Truss (Span YB-4)	I&A 2/13/08	N/A	Executed 2/20/08	\$563,725	(\$3)
93S1	LS	Additional Lead Abatement at Span YB-4	I&A 6/8/09	N/A	Executed 6/17/09	\$347,417	
93S2	LS	Additional Platform Rental and Adjustments	I&A 10/5/09	TBD	Executed 10/8/09	\$300,000	\$300,000



**Yerba Buena Island Detour, Contract No. 04-0120R4**  
**Contract Change Order Implementation Strategy**  
**December 27, 2010**

DRAFT

104	FA	Pier E-1 Access Towers	N/A	N/A	Executed 1/30/08	\$150,000	
104S1	FA	Additional Funds for Pier E-1 Access Towers	N/A	N/A	Executed 2/14/09	\$45,000	\$45,000
104S2	FA	Additional Funds for Pier E-1 Access Towers	I&A 6/25/10	N/A	Executed 6/24/10	\$50,000	\$50,000
113	LS	Relocate Waterline in Conflict with Northern Skid Bent Footings	N/A	N/A	Executed 3/17/08	\$167,990	
128	LS	20% of Waterline Relocation and ETI Exterior Stringer Stiffeners	I&A 8/18/09	N/A	Executed 10/8/09	\$177,708	(\$128,346)
128S1	LS	20% of Waterline Design Mods and Impact Costs	N/A	N/A	Executed 1/20/10	\$48,476	
137	LS	Pump station Water Tank Demo	N/A	N/A	Executed 6/26/08	\$114,490	
90	LS	Bent 52A and Skid Bent Footings and Credits for Eliminated Bid Items 10 and 42	I&A 3/26/08	Approved 4/4/08	Executed 4/14/08	\$11,308,380	
97	FA	Bent 52A and Skid Bent Footing's Material Procurement	I&A 11/06/07	N/A	Executed 11/19/07	\$850,000	
121	LS	Construct Stage 1 Soil Nail Wall, Upper East Tie-In area	N/A	N/A	Executed 3/17/08	\$142,670	
121S1	LS	Construct Stage 2 Soil Nail Wall, Upper East Tie-In area	N/A	N/A	Executed 3/18/09	\$518,130	
162	LS	Bent A3 Shoring	I&A 3/30/09	N/A	Executed 4/01/09	\$268,235	
180	LS	Skid Bent Footing Backfill at A4-A6 and B4-B6	I&A 5/20/09	N/A	Executed 6/12/09	\$237,000	
127	FA	RTU – 8 Service Platform	N/A	N/A	Executed 9/03/08	\$75,000	
134	LS	20% of Project Wide Electrical Changes	7/7/09	Approved 5/7/09	Executed 8/25/09	\$460,185	
196	LS	Revised Electrical Lighting	N/A	N/A	Executed 7/28/09	\$11,981	(\$58,019)
129	LS	Skid Bent and Truss Steel Erection	I&A 11/05/08	Approved 11/10/08	Executed 11/25/08	\$14,712,500	\$654,450
129S1	LS	Skid Bent and Truss Steel Erection Acceleration	I&A 3/09/09	Approved 3/5/09	Executed 4/01/09	\$535,000	
129S2	LS	Skid Bent and Truss Steel Erection Incentive	I&A 6/9/09	Approved 6/4/09	Executed 6/17/09	\$1,177,000	
179	LS	ETI Truss Steel Erection Falsework Foundations	I&A 4/20/09	N/A	Executed 4/08/09	\$312,000	
234	LS	ETI Skid Bent/Beam Erection Interferences and Guy Cables	N/A	N/A	Executed 1/20/10	\$54,120	
236	LS	ETI Truss L8 North FW Redesign (Buried Man Made Object)	N/A	N/A	Executed 1/20/10	\$23,720	
236 S1	LS	Truss L8 North FW Redesign	N/A	N/A	Executed 8/24/10	\$16,390	
181	LS	ETI Access & Grouting	N/A	N/A	Executed 8/18/10	\$49,200	
261	LS	ETI Welding Quality Control	N/A	N/A	Executed 8/18/10	\$189,140	
206	LS	Skid Bent Steel Erection Closeout Costs	N/A	N/A	Executed 1/20/10	\$176,670	
214	LS	ETI Truss Steel Erection Closeout Costs		N/A	Executed 1/20/10	\$645,210	
112	FA	Material Procure Skidbent (1532 Tower Legs)	I&A 1/10/08	Approved 2/4/08	Executed 2/19/08	\$2,000,000	
112S1	FA	Material Procure ETI Superstructure	I&A 3/03/08	Approved 3/5/08	Executed 3/17/08	\$8,500,000	
112S2	FA	Material Procure ETI Temporary Bypass Structure	I&A 6/04/08	Approved 6/16/08	Executed 6/25/08	\$3,500,000	
112S3	FA	Material Procure - Additional Funds	I&A 10/31/08	Approved 11/13/08	Executed 11/25/08	\$3,000,000	
112S4	FA	Material Procure - Additional Funds	I&A 7/7/09	Approved 7/15/09	Executed 7/16/09	\$1,500,000	
116	FA/LS	Fabricate Superstructure & Skidbent	I&A 6/04/08	Approved 6/16/08	Executed 8/8/08	\$14,166,180	

**Yerba Buena Island Detour, Contract No. 04-0120R4**  
**Contract Change Order Implementation Strategy**  
**December 27, 2010**

DRAFT

116S1	FA/LS	Skidbeam Design Modifications and Shipping Costs	I&A 12/19/08	Approved 12/23/08	Executed 2/3/09	\$1,896,750	\$249,560
116S2	FA/LS	Skidbeam Design Modifications and Shipping Costs	I&A 7/7/09	Approved 7/15/09	Executed 7/16/09	\$300,000	
140	LS	Truss Steel Fabrication	I&A 9/04/08	Approved 9/04/08	Executed 9/23/08	\$10,920,525	
140S1	ACUP	Truss Fabrication Incentive	I&A 6/17/09	Approved 9/04/08	Executed 7/6/09	\$300,000	
166	LS	Skid Bent & Beam Fabrication Acceleration	I&A 12/22/08	Verbal Approval 11/06/08 Approved 12/23/08	Executed 1/28/09	\$2,028,950	
166S1	ACUP	Skid Bent & Beam Fabrication Incentive	I&A 5/15/08	Approved 12/23/08	Executed 5/15/09	\$900,000	
167	LS	TMF – Shop Drawing Delay	I&A 3/16/09	N/A	Executed 5/6/09	\$632,670	
184	LS	Truss Design Modifications and Acceleration Costs (Partial Payment)	I&A 5/20/09	Approved 6/4/09	Executed 6/12/09	\$3,000,000	
184S1	LS	Truss Design Modifications and Acceleration Costs (Partial Payment)	I&A 7/31/09	Approved 8/6/09	Executed 8/11/09	\$4,393,420	
187	FA	Temporary Bracing for Truss Exterior Stringers	N/A	N/A	Executed 7/16/09	\$150,000	
193	LS	Skid Beam Design Modifications	I&A 7/7/09	N/A	Executed 7/16/09	\$256,140	\$1,000,000
144	FA	Expansion Joint Mock-up	I&A 8/26/08	N/A	Executed 9/23/08	\$850,000	
144S1	FA	Expansion Joint Fabrication	I&A 2/03/08	Approved 2/5/09	Executed 4/06/09	\$2,900,000	
144S2	-	Revised Expansion Joint Plan Sheets	I&A 7/1/09	N/A	Executed 8/05/09	\$0	
144S3	FA	Additional Funds for Expansion Joints	I&A 11/24/09	Approved 11/5/09	Executed 11/24/09	\$1,000,000	\$100,000
231	FA	Expansion Joint Steel Skid Test Plates	N/A	N/A	Executed 12/15/09	\$100,000	
233	LS/FA	Expansion Joint Skid Resistant Treatment	N/A	N/A	Executed 11/17/09	\$106,915	\$106,915
149	FA	Bearing Fabrication	I&A 11/03/08	Approved 11/10/08	Executed 11/25/08	\$1,600,000	\$400,000
149S1	FA	Additional FA Funds for Bearing Fabrication / Testing	I&A 10/15/09	N/A	Executed 11/19/09	\$400,000	
153	LS	Concrete Deck and barrier starter steel	I&A 6/23/09	Approved 6/4/09	Executed 7/6/09	\$2,389,940	(\$378,266)
154	LS	East Pile Deduct at BW6, East Pile	N/A	N/A	Executed 9/04/08	(\$400)	
154S1	LS	Pile Anomaly Deduction at A6W & B52A	N/A	Approved 11/13/08	Executed 11/25/08	(\$2,183)	
160	FA	Existing Truss Retrofit Fabrication	I&A 4/20/09	N/A	Executed 4/08/09	\$350,000	
170	LS	Existing Truss Strengthening Erection YB-4	I&A 7/31/09	N/A	Executed 10/08/09	\$413,600	(\$336,400)
175	LS	Existing Truss Strengthening Erection Stability Bracing at YB 3	I&A 7/22/09	N/A	Executed 8/13/09	\$311,144	(\$188,856)
164	LS	ETI Steel Erection Crane Runway Trestle	I&A 11/20/08	ATP 11/14/08 Approved 12/23/08	Executed 12/6/09	\$2,700,000	
169	LS	Skid Beam Jobsite Handling and Local Transportation Costs	I&A ½/09	Approved 12/23/08	Executed 2/25/09	\$1,095,020	
171	LS	Bridge Roll Out / Roll In	I&A 6/8/09	Approved 6/4/09	Executed 6/17/09	\$10,147,370	(\$328,820)
172	LS	Lead Paint Abatement and Access at YB-3	I&A 12/18/08	N/A	Executed 2/4/09	\$240,450	\$30,000
174	FA	ETI Steel Barrier Rail Transition Fabrication	I&A 5/20/09	N/A	Executed 6/17/09	\$350,000	\$150,000
174S1	--	ETI Steel Barrier Rail Transition Fabrication Design Changes	N/A	N/A	Executed 11/4/09	\$0	

**Yerba Buena Island Detour, Contract No. 04-0120R4**  
**Contract Change Order Implementation Strategy**  
**December 27, 2010**

DRAFT

174S2	FA	ETI Steel Barrier Rail Transition Fabrication	I&A 11/5/09	N/A	Executed 11/4/09	\$150,000	
177	LS	Span YB-4 Demolition	I&A 9/17/09	Approved 9/2/09	Executed 10/12/09	\$11,249,560	\$1,448,316
217	LS	Skid Bent Demolition	I&A 10/14/09	Approved 9/18/09	Executed 11/19/09	\$3,152,900	
212	LS	YB4 Roll Out Cut Free Demolition	I&A 9/2/09	N/A	Executed 10/08/09	\$209,720	
227		ETI Backfill	I&A 3/15/10	N/A	Executed 4/19/10	\$441,040	
186	LS	TMP (Lane Closures and CMS)	***	Approved 6/4/09	Executed 8/25/09	\$2,390,910	(\$609,090)
198	Credit/ LS	20% of Job Wide Stripping Plan (ETI Portion)		N/A	Executed 12/14/09	\$59,893	\$11,478
	-	ETI OGAC on Bridge Deck – Work Not Performed				\$0	
		District work – road signage, stage construction, SWPPP, Temp k-rail, etc – Work Not Performed		TBD	Future	\$0	(\$268,125)
204	FA	CCM's Labor Day Support Costs	I&A 7/14/09	Approved 7/15/09	Executed 8/6/09	\$3,500,000	
		Expansion Joint Seal Installation (previously CCO 189)					
		ETI Steel Barrier Rail Transition Installation (previously CCO 190)					
		Stability Bracing at YBI (Previously CCO 175)					
		Bearing Installation (Previously CCO 191)					
		Barrier Rail Installation (CCO 202 transmitted plans)					
204S1	FA	Additional Funds		Approved 3/4/10	Executed 4/14/10	\$2,500,000	\$1,100,000
216	FA	Pier E1 Barrier Rail Supports	N/A	N/A	Executed 10/08/09	\$175,000	\$175,000
225	FA	Steel Double Handling Costs	I&A 9/17/09	N/A	Executed 10/08/09	\$500,000	\$600,000
225 S1	FA	Steel Double Handling Costs – Additional Funds	I&A 7/6/10	N/A	Executed 7/2/10	\$100,000	
207	FA	Field Design Modifications Truss – Fabrication (U1, U8, L1, L8)	I&A 7/16/09	N/A	Executed 7/28/09	\$400,000	(\$874,590)
207S1	FA	Additional Funds to Field Design Modifications Truss – Fabrication (U1, U8, L1, L8)	N/A	N/A	Executed 10/27/09	\$100,000	
219	LS	Field Design Modifications Truss – Erection (U1, U8, L1, L8)	I&A 10/8/09	N/A	Executed 11/19/09	\$625,410	
<b>Current Status for East Tie-In</b>						<b>\$143,199,560</b>	<b>\$3,176,274</b>

Budget Status

The Contractor's bid price to construct the Contractor's design for the East Tie-In was \$6.0M with an additional \$1.46M to demolish the remaining portion of the ETI YB-4 span. The Department's December 14, 2006 Strategy Memorandum estimated an additional cost of \$34.0M to construct the Department's ETI roll out/roll in design concept. At the time, this estimate was based on minimal design information available. The June 2009 revised additional cost estimate is \$140.0M, with the current projection at \$143.2M. CCOs executed to date are \$143.2M.

Yerba Buena Island Transition Structures  
Advance Foundations

4

Progress of Work

The YBITS foundation and column locations being advanced are W3R/L, W4R/L, W5R/L, W6R/L, W7R/L, W7 Ramp and the temporary E.B. onramp abutment.

W3 3L – completed  
3R – completed  
W4 4L – completed  
4R – completed  
W5 5L – column (3<sup>rd</sup> lift of 4) in progress



**Yerba Buena Island Detour, Contract No. 04-0120R4**  
**Contract Change Order Implementation Strategy**  
**December 27, 2010**

DRAFT

5R – column (3<sup>rd</sup> lift of 3) in progress  
W6 6L – completed  
6R North – completed  
6R South – completed  
W7 7L North – completed  
7L South – completed  
7R –completed  
Ramp –completed  
EB On-ramp abutment – temporary shoring piles and permanent CIDH piles have been installed

Demolition of the main portion of the old structure (Bent 48 to YB4) is completed.

Demolition of the old YB-1, YB-2 and YB-3 spans is completed.

Demolition of Abutment YB-1 to Bent 48 is completed

Status of Contract Change Orders: YBI Transition Structures Advance Foundations

CCO	Method of Payment	Description	HQ Status	TBPOC Status	CCO Status	Current Estimate/ Actual Cost	Change from June 09 Approved Budget
64	FA	YBITS W3L Site Prep and Grading and Construct Access Road	N/A	N/A	Executed 1/8/07	\$150,000	
64S1	LS/FA	YBITS W3L Foundation and Column to Splice Zone, Integrated Shop Drawings for W3L, Concrete Washouts, 50% of Flagging, and Traffic Controls	I&A 3/13/07	Approved 2/15/07	Executed 4/4/07	\$5,835,000	
65	FA	Demo Exist Bridge Adv. Planning	N/A	Approved 4/14/08	Executed 4/18/08	\$175,000	\$1,209,620
65S1	LS	Demolish Exist Bridge (Bent 48 to YB-4)	I&A 4/06/09	Approved 5/7/09	Executed 5/21/09	\$9,227,660	
158	FA	Pile Procurement for Demo Falsework		N/A	Executed 9/12/08	\$980,000	
192	LS	Cable Bracing requires for Demolition of Spans YB-1, YB-2, and YB-3	N/A	N/A	Executed 8/13/09	\$111,540	
229	FA	Maintenance Traveler Salvage	N/A	N/A	Executed 12/14/09	\$100,000	
244	LS	Concrete Removal Bent 48 & Pier YB-1	N/A	N/A	Executed 6/29/10	\$27,180	
244S1	FA	Additional Concrete Removal Bent 48 & Pier YB-1	N/A	N/A	Executed 7/14/10	\$75,000	
252	LS	USCG Impacts to Existing Bridge Demo	N/A	N/A	Executed 6/28/10	\$21,400	
253	LS	Transite Pipe Removal on Existing Bridge Demo	N/A	N/A	Executed 6/28/10	\$74,040	
254	LS	Cardboard Removal on Existing Bridge Demo	N/A	N/A	Executed 7/1/10	\$20,460	
70	FA	Integrated Shop Drawings for Remaining YBITS Advance Locations (W3R, W4L/R, W5L/R, W6L/R, W7L/R, and W7 Ramp)	I&A 4/04/07	N/A	Executed 5/1/07	\$500,000	
70S1	FA	YBITS Advance – ISD 3R, 4R/L, 5R/L, 6R/L, 7R/L & ramp	I&A 1/17/08	N/A	Executed 1/30/08	\$450,000	
73	LS	YBITS W3R, W4R, W5R/L, W6R/L, and W7 Ramp Foundations and Columns	I&A 10/24/07	Approved 10/30/07	Executed 11/19/07	\$62,958,990	
75	LS	YBITS W7R/L Foundations and Columns	I&A 4/2/08	Approved 4/3/08	Executed 4/14/08	\$13,125,000	(\$697,560)
75S1	LS	Bent W7 Structure Backfill	I&A 7/7/09	Approved 7/15/09	Executed 7/31/09	\$910,810	
241	LS	Bent W7 Drainage Modifications		N/A	Executed 4/6/10	\$141,630	
77	LS	YBITS W4L Foundations and Columns	I&A 6/13/07	Approved 7/27/07	Executed 7/20/07	\$7,125,000	
78	FA	Relocation of Sewer Force Main	N/A	N/A	Executed 7/17/07	\$125,057	
94	LS	YBITS Temp. EB Onramp Abutment Piles and Shoring	I&A 5/18/09	N/A	Executed 5/21/09	\$153,593	(\$211,099)
94S1	LS	YBITS Temporary EB On Ramp Shoring & Grading	N/A	N/A	Executed 8/17/10	\$35,308	

**Yerba Buena Island Detour, Contract No. 04-0120R4**  
**Contract Change Order Implementation Strategy**  
**December 27, 2010**

DRAFT

118	FA	Vibration & Elev. Monitoring at W5L	N/A	N/A	Executed 2/20/08	\$50,000	\$340,000
118S1	FA/LS/ID	Nimitz House vibration monitoring	N/A	N/A	Executed 8/05/08	\$50,050	
118S2	FA	Nimitz House vibration monitoring	N/A	N/A	Executed 12/14/09	\$40,000	
118S3	FA	Nimitz House vibration monitoring	I&A 2/16/10	N/A	Executed 2/22/10	\$100,000	
118S4	FA	Nimitz House vibration monitoring	I&A 4/20/10	N/A	Executed 4/27/10	\$100,000	
118S5	FA	Nimitz House vibration monitoring	I&A	N/A	10/7/10	\$60,000	\$60,000
<b>118S6</b>	<b>FA</b>	<b>Nimitz House vibration monitoring</b>	<b>I&amp;A</b>	<b>N/A</b>	<b>In Progress</b>	<b>\$80,000</b>	<b>\$80,000</b>
120	LS/Credit	CIDH Pile Mitigation Deduct	N/A	N/A	Executed 3/17/08	(\$400)	
124	FA/LS	Seismic Monitoring & Column Grounding	I&A 10/16/08	N/A	Executed 11/25/08	\$353,975	
124S1	LS	Seismic Monitoring & Column Grounding	N/A	N/A	Executed 05/19/10	\$1,100	\$1,100
126	FA	YBITS Excavation / Hazmat Disposal	I&A 4/7/08	Approved 4/3/08	Executed 4/17/08	\$500,000	
145	-	Revised Mass Concrete Spec. (Elimination of requirement from CCO's 73 & 75)	7/22/09	N/A	Executed 8/25/09	\$0	(\$157,730)
145S1	Credit	Credit for Eliminated Mass Concrete Work		N/A	Executed 3/22/10	(\$657,730)	
147	LS	Add Cost W4R Foundation Construction	N/A	N/A	Executed 7/21/08	\$25,024	
155	FA	Excess Soil Off-Haul	I&A 8/13/08	N/A	Executed 9/03/08	\$500,000	
159	LS	Redesign Bent W7 Soil Nail Wall	I&A 11/10/08	N/A	Executed 5/21/09	\$916,280	
165	LS	W7 Soil Nail Wall Delay Costs	I&A 4/20/09	N/A	Executed 4/08/09	\$152,208	
185	FA/ID	HazMat Excavation for Bridge Removal	8/10/09	N/A	Executed 8/25/09	\$106,000	\$106,000
185S1	FA	Add Funds HazMat Excavation for Bridge Removal	<b>I&amp;A</b>	N/A	Executed 10/7/10	\$60,000	\$60,000
211	LS	Duct Bank Revisions	N/A	N/A	Executed 8/13/09	\$129,152	\$34,772
232	LS/FA	Duct Bank Footing Removal & Drain Rock	N/A	N/A	Executed 11/19/09	\$105,620	
248	LS	Duct Bank Utility Conflicts	N/A	N/A	Executed 10/6/10	\$95,940	\$95,940
249	LS Credit	Eliminate 210mm DIP Water Line	I&A 7/28/10	N/A	Executed 8/17/10	(\$510,000)	(\$510,000)
255	FA	Clean & paint Rebar at Top of Columns	N/A	N/A	Executed 7/14/10	\$180,000	\$180,000
255 S1	FA	Clean & paint Rebar at Top of Columns – Add Funds	I&A 8/5/10	N/A	Executed 8/9/10	\$100,000	\$100,000
257	LS Credit	Eliminate End of Duct Bank	N/A	N/A	Executed 10/7/10	(\$49,520)	(\$49,520)
258	LS	W7 Drainage Modifications	N/A	N/A	Executed 10/25/10	\$55,970	\$58,050
262	LS	YBITS Column Form Procurement	N/A	N/A	Executed 10/6/10	\$140,800	\$140,800
263	LS Credit	Eliminate W3 Drainage System	N/A	N/A	Executed 10/11/10	(\$53,830)	(\$53,830)
265	LS	Bent W5 Delay Mitigation	N/A	N/A	Executed 10/6/10	\$176,590	\$176,590
<b>Current Status for YBI Transition Structures Advance Foundations</b>						<b>\$105,129,897</b>	<b>\$861,053</b>

Budget Status

The Department's December 25, 2006 Strategy Memorandum estimated the cost to construct Bents W3R/L, W4R/L, W5R/L, W6R/L, W7R/L, and W7 Ramp to be \$107M. In addition, the temporary E.B. onramp abutment shoring was added at a later date with no estimate revision. The Departments December 14, 2006 Strategy

**Yerba Buena Island Detour, Contract No. 04-0120R4**  
**Contract Change Order Implementation Strategy**  
**December 27, 2010**

DRAFT

Memorandum estimated the additional demolition costs for the existing bridge (Bent 48 through YB-4) to be \$3.5M. The combined estimate for both was \$110.5M. The June 2009 revised additional cost estimate is \$104.3M with a current projection of \$105.1M. Total CCOs executed to date are \$105.0M.

**Administrative Issues General CCOs**

5

Progress of Work

Administrative issues that remain on the YBID contract are related to setting project milestones and determining time related overhead resulting from the contract time extensions, escalation costs, the increased scope of work, and other necessary changes to the contract.

The following list of target milestones has been incorporated into the project schedule. This information will be revised as more detailed schedule information is developed.

	Date	Status	Notes
W3L (foundation and column up to splice zone)	March 15 <sup>th</sup> , 2007	Complete	Finished 3/15/07
West Tie-In Phase 1 Viaduct Demo/Roll-In Complete	September 4 <sup>th</sup> , 2007	Complete	Finished 9/04/07
Access to W3R Available to CCM	January 2 <sup>nd</sup> , 2008	Partial access provided	Coordinating access with SAS
Upper East Tie-In Area Available to CCM (Revised October 2008)	December 2009	Partial access provided	Coordinating access with SAS
East Tie-In Roll-Out/Roll-In Complete (Revised October 2008)	September 7 <sup>th</sup> , 2009	Complete	Finished 9/8/09
Project Completion (Revised July 2009)	December 10, 2010		

The Department has extended TRO compensation at the original contract rate through December 10, 2010. The Contractor has completed a TRO audit. The Department is reviewing this information so that an appropriate TRO adjustment can be negotiated.

The Department continues to pursue a resolution to the remaining NOPC issues. Of the 18 NOPC issues, only NOPC #18 remains outstanding. Resolution of the TRO costs will resolve this outstanding NOPC.

Status of Contract Change Orders: Administrative Issues

CCO	Method of Payment	Description	HQ Status	TBPOC Status	CCO Status	Current Estimate/ Actual Cost	Change from June 09 Approved Budget
1 S2	FA	Flagging & Traffic Control	N/A	N/A	Executed 12/5/07	\$200,000	
1S3	FA	Flagging & Traffic Control	N/A	N/A	Executed 7/2/08	\$300,000	
1S4	FA/LS	Flagging & Traffic Control	N/A	N/A	Executed 7/9/09	(\$57,580)	(\$57,580)
1S5	FA	Flagging & Traffic Control	I&A 2/16/10	N/A	Executed 2/23/10	\$250,000	\$250,000
1S6	FA	Flagging & Traffic Control	I&A 6/6/10	Approved 6/3/10	Executed 7/7/10	\$500,000	\$500,000
8 S1	FA	Add Funds for SWPPP Maint Sharing	N/A	N/A	Executed 12/14/09	\$25,000	\$25,000
8 S2	FA	Add Funds for SWPPP Maint Sharing	N/A	N/A	Executed 9/9/10	\$80,000	\$80,000
11S1	FA	Add Funds for Utility Potholing	N/A	N/A	Executed 12/14/09	\$25,000	\$25,000
<b>11S2</b>	<b>FA</b>	<b>Add Funds for Utility Potholing</b>	<b>N/A</b>	<b>N/A</b>	<b>Pending</b>	<b>\$70,000</b>	<b>\$70,000</b>
13S1	FA	PMIV Additional Funds	I&A 3/10/08	N/A	Executed 3/17/08	\$300,000	
13S2	FA	PMIV Additional Funds	I&A 7/6/10	N/A	Executed 7/7/10	\$100,000	\$100,000
22 S1	FA	Additional Funds Maintain Stairway Access	N/A	N/A	Executed 11/13/08	\$25,000	\$25,000
22 S2	FA	Additional Funds Maintain Stairway Access	N/A	N/A	Executed 6/17/10	\$60,000	\$60,000



**Yerba Buena Island Detour, Contract No. 04-0120R4**  
**Contract Change Order Implementation Strategy**  
**December 27, 2010**

DRAFT

39S1	FA	Additional Funds for Shuttle Service to USCG	I&A 3/18/09	N/A	Executed 3/30/2009	\$500,000	\$200,000
39S2	FA	Additional Funds for Shuttle Service to USCG		N/A	Executed 2/22/10	\$200,000	
45 S1	LS	Additional SWPPP	I&A 12/14/07	N/A	Executed 1/31/08	\$350,000	
51	LS	NOPC 12 & 13 Resolution	N/A	N/A	Executed 8/17/06	\$25,234	
52	0	Elimination of Contractor's Design of Tie-Ins	I&A 1/19/07	N/A	Executed 3/2/07	\$0	
53	FA	Handling and Storage of Material	I&A 11/06/06	N/A	Executed 12/8/06	\$240,000	
56	LS	Contractor's Design additional cost... Resolved NOPCs 2,3,4,8,9,10,11,14, and 16	I&A 2/20/08	Approved 3/5/08	Executed 3/17/08	\$6,837,310	
57	LS	Demolition of Building 206	N/A	N/A	Executed 10/18/06	\$22,378	
57S1	LS	Remove and Clear Building 254	N/A	N/A	Executed 6/4/07	\$10,572	
66S1	FA	Video/Photo Documentation Services Supplemental Funds	N/A	N/A	Executed 4/14/08	\$200,000	
66S2	FA	Video/Photo Documentation Services Supplemental Funds	I&A 9/17/09	N/A	Executed 9/22/09	\$200,000	
86	LS	Additional Suspension Costs	N/A	N/A	Executed 5/19/08	\$42,764	
91	LS	Contract Days Extension/TRO Compensation to November 08	RPP 8/28/07	TBD	Executed 10/31/07	\$1,818,948	
91 S1	LS	Base Contract TRO Extension to September 1, 2009	I&A 10/25/07	Approved 10/30/07	Executed 11/16/07	\$8,463,159	
91 S2	LS	Base Contract TRO Extension to December 10, 2010	I&A 9/2/09	Approved 7/15/09	Executed 10/08/09	\$5,494,737	
114	FA	Global TRO Audit	N/A	N/A	Executed 1/20/10	\$30,000	
<b>260</b>	<b>LS</b>	<b>Global TRO Adjustment</b>	<b>TBD</b>	<b>TBD</b>	<b>In Progress</b>	<b>\$6,475,263</b>	
96	FA	SWPPP Steep Slope Stabilization Measures	N/A	N/A	Executed 1/4/08	\$190,000	
96S1	FA	Add Funds Shotcrete Slope at Bent 48	N/A	N/A	Executed 7/2/08	\$40,000	
96S2	FA	Add Funds Shotcrete Slope at Bent 48	N/A	N/A	Executed 9/17/09	\$100,000	\$100,000
109	FA	MEP Coordination	N/A	N/A	Executed 1/30/08	\$100,000	
110	FA	Geotech. Exploration Pads and Support	N/A	N/A	Executed 2/20/08	\$150,000	
119	FA/LS/ID/UP	Project Wide SWPPP	I&A 4/07/08	N/A	Executed 4/17/08	\$638,939	
119S1	FA	Project Wide SWPPP (Additional Funds)	I&A 9/2/09	N/A	Executed 9/3/09	\$300,000	\$300,000
119S2	FA	Project Wide SWPPP (Additional Funds)	I&A 12/17/09	Approved 12/5/09	Executed 12/21/09	\$850,000	\$850,000
119S3	FA	Project Wide SWPPP (Additional Funds)	I&A 05/05/10	Approved 05/06/10	Executed 05/20/10	\$600,000	\$600,000
<b>119S4</b>	<b>FA</b>	<b>Project Wide SWPPP (Additional Funds)</b>	<b>Current</b>	<b>Current</b>	<b>In Progress</b>	<b>\$500,000</b>	<b>\$500,000</b>
123	FA	Treasure Island Yard Lot Rental	I&A 4/16/08	N/A	Executed 4/17/08	\$600,000	\$350,000
123S1	FA	Additional Funds for Treasure Island Yard Lot Rental	I&A 10/8/09	N/A	Executed 10/26/09	\$350,000	
125	FA	Project Access Paving	N/A	N/A	Executed 4/04/08	\$150,000	\$150,000
125S1	FA	Additional Funds, Project Access Paving	I&A 6/12/08	N/A	Executed 6/25/08	\$35,000	
125S2	FA	Additional Funds, Project Access Paving	I&A 4/20/09	N/A	Executed 4/23/09	\$100,000	
125S3	FA	Additional Funds, Project Access Paving	I&A 9/17/09	N/A	Executed 9/22/09	\$50,000	
130	LS	Project Retention	I&A 4/07/08	N/A	Executed 4/14/08	\$136,510	

**Yerba Buena Island Detour, Contract No. 04-0120R4**  
**Contract Change Order Implementation Strategy**  
**December 27, 2010**

DRAFT

131	FA	Delete Permanent Erosion Control Items	N/A	N/A	Executed 5/6/09	(\$74,502)	
132	LS	Storm Damage Slope Repair (Resolved NOPC 17)	N/A	N/A	Executed 5/23/08	\$23,870	
139	-	Revised ESA's	N/A	N/A	Executed 5/23/08	\$0	
142	FA	Macalla Road Sinkhole Repair	N/A	N/A	Executed 7/18/08	\$150,000	
146	FA	Macalla Road Tree Trimming	N/A	N/A	Executed 7/21/08	\$50,000	\$180,000
146S1	FA	Add Funds Macalla Road Tree Trimming	N/A	N/A	Executed 11/25/08	\$50,000	
146S2	FA	Add Funds Macalla Road Tree Trimming	N/A	N/A	Executed 2/16/10	\$80,000	
146S3	FA	Add Funds Macalla Road Tree Trimming	N/A	N/A	Executed 05/20/10	\$100,000	
151	-	Public Safety Spec Change (Suspended Load)	N/A	N/A	Executed 9/23/08	\$0	
157	FA	USCG Access Mitigation Stairway Design to Quarters Above	N/A	N/A	Executed 1/28/09	\$150,000	
176	FA	Construction Staking	N/A	N/A	Executed 4/08/09	\$100,000	
182	FA	USCG use parking lots at WTI area Quarters 8	N/A	N/A	Executed 1/20/10	\$180,000	\$100,000
182S1	FA	USCG use parking lots at WTI area Quarters 8, additional parking and revised plans	I&A 2/16/10	N/A	Executed 2/26/10	\$220,000	
182S2	FA/LS	USCG Quarters 8, Parking Lot Security and Lighting	I&A	N/A	Executed 6/14/10	\$250,950	\$250,950
182S3	LS	USCG Quarters 8, Parking Lot Additional Lighting	I&A 6/9/10	N/A	Executed 6/28/10	\$62,250	\$62,250
183	N/A	Item Deletions (VOIDED) (Deleted on individual CCO's)	N/A	N/A	N/A	\$0	\$0
188	-	Sound Control Requirements, pile driving restrictions (Specification Only)	6/23/09	N/A	Executed 8/25/09	\$142,500	\$42,500
188S1	LS	Sound Control Impacts to W6 & W7 Pile Driving	I&A 1/29/10	N/A	Executed 4/1/10		
195	FA	USCG Stair Access to Quarters 9 along Goat Slope	7/31/09	N/A	Executed 8/25/09	\$500,000	\$150,000
195S1	FA	USCG Stairway additional funds	I&A	N/A	Executed 4/8/10	\$450,000	
195S2	FA	USCG Stairway additional funds	I&A	N/A	Executed 10/7/10	\$35,000	\$35,000
203	LS	SSD Base Camera's	N/A	N/A	Executed 10/08/09	\$196,884	(\$503,116)
-	N/A	Permanent Gawk Screen - CCO Deleted	N/A	N/A	N/A	\$0	(\$200,000)
-	N/A	Macalla Road Repairs (Costs not incurred)	N/A	N/A	N/A	\$0	(\$200,000)
224	FA	Treasure Island Material Storage Yard	I&A 9/17/09	N/A	Executed 10/08/09	\$400,000	\$700,000
224 S1	FA	Treasure Island Material Storage Yard	I&A	N/A	Executed 10/7/10	\$300,000	
228	FA	Added Call Boxes & SCADA	N/A	N/A	Executed 05/19/10	\$15,980	\$15,980
230	FA	USCG Shuttle for WB Onramp Closure	I&A 10/29/09	N/A	Executed 11/19/09	\$600,000	\$600,000
235	FA	Detour Traffic Improvements – Signing & Lighting	I&A	N/A	Executed 2/8/10	\$300,000	\$980,000
235 S1	FA	Detour Traffic Improvements – Beacons & Fencing	I&A 3/9/10	N/A	Executed 3/22/10	\$200,000	
235 S2	FA	Detour Traffic Improvements – Dynamic Message Sign	I&A 4/29/10	N/A	Executed 5/17/10	\$350,000	
235 S3	FA	Detour Traffic Improvements – Additional Funds	I&A	N/A	Executed 10/7/10	\$130,000	
237	LS	Temporary Trestle Extended Rental	I&A	N/A	Executed 4/14/10	\$267,510	\$267,510
239	LS / FA	Truck Accident Clean Up (11-9-09)	N/A	N/A	Executed 2/8/10	\$55,263	\$55,263

**Yerba Buena Island Detour, Contract No. 04-0120R4**  
**Contract Change Order Implementation Strategy**  
**December 27, 2010**

**DRAFT**

240	LS	Mainline Night Lane Closures	I&A 1/26/10	N/A	Executed 2/23/10	\$948,040	\$2,030,360
240S1	LS	Additional Night Lane Closures (To April, 10)	I&A 3/03/10	Approved 2/11/10	Executed 4/6/10	\$298,940	
240S2	LS	Additional Night Lane Closures (To June, 10)	I&A 4/15/10	Approved 04/01/10	Executed 5/17/10	\$491,680	
240S3	LS	Additional Night Lane Closures (Post June 2010)	I&A 6/24/10	Approved 05/06/10	Executed 7/14/10	\$291,700	
246	LS	Install Rumble Strips	N/A	N/A	Executed 5/19/2010	\$146,160	\$146,160
246 S1	LS	Install Additional Rumble Strips	N/A	N/A	Executed 7/28/10	\$30,380	\$30,380
247	LS	Install Vehicle Detection Stations	I&A 5/3/10	N/A	Executed 5/19/2010	\$338,570	\$338,570
250	FA	USCG Fence on Goat Slope	N/A	N/A	Executed 5/19/2010	\$180,000	\$180,000
259	LS	Jobsite Maintenance During Temp. Suspension	N/A	N/A	Executed 8/17/10	\$8,610	\$8,610
264	FA	Jobsite Vehicle & Pedestrian Access Control	N/A	N/A	Executed 9/9/10	\$150,000	\$150,000
		<b>Indirect Contract Costs</b>					
		<b>COZEEP (\$1,300,000 Budgeted)</b>		<b>N/A</b>	<b>In Progress</b>	<b>\$4,600,000</b>	<b>\$3,300,000</b>
		<b>State Furnished Materials &amp; Services (Approx. Balance above \$379,000 budgeted under Baseline) (Est. Total Cost = \$900,000)</b>		<b>N/A</b>	<b>In Progress</b>	<b>\$521,000</b>	<b>\$521,000</b>
		<b>PIO Office Labor Day Outreach</b>		<b>N/A</b>	<b>In Progress</b>	<b>\$0</b>	<b>(\$200,000)</b>
<b>Current Status for Administrative and General CCOs</b>						<b>\$50,969,469</b>	<b>\$13,169,287</b>

**Budget Status**

As of June 2009 the revised additional cost estimate for Time Related Overhead, escalation issues and job wide changes was \$37.8M with the largest estimated cost being attributed to a global TRO adjustment. The current projection of \$51.0M includes \$45.9M in contract change orders and \$5.1M in increased COZEEP and State Furnished Materials & Expenses costs. Total CCOs executed to date are \$38.9M.

Approximately \$7.8M in costs have been incurred providing traffic safety enhancements (\$3.6M) and COZEEP support (\$4.2M) for the detour after its September 2009 opening.



## *Memorandum*

**TO:** Toll Bridge Oversight Committee (TBPOC)    **DATE:** January 26, 2011

**FR:** Tony Anziano, Toll Bridge Program Manager, Caltrans

**RE:** Agenda No. - 3c2

Item – Consent Calendar

Contract Change Orders (CCOs)

SAS CCO 167 - LED Light Fixture Procurement

---

**Recommendation:**

**APPROVAL**

**Cost:**

CCO No. 167: \$1,555,614.00

**Schedule Impacts:**

None

**Discussion:**

Lighting for the new east span of the SFOBB is conveyed by approximately 1,180 light fixtures on the OTD, Skyway, SAS and YBITS structures with approximately 760 fixtures mounted on 253 light poles throughout the structures and the remaining 438 fixtures mounted on the cable, tower and bridge deck of the SAS structure. The original scope of work provided for metal halide light fixtures throughout.

In accordance with the Mechanical, Electrical & Piping (MEP) Integration Strategy memo which was approved by the TBPOC at the November 2008 meeting, BATA has recently awarded a contract to procure the steel light poles for the entire east span. The procurement of the light fixtures for these poles was eliminated from that contract by addendum to allow for the fixtures to be changed from metal halide lights to LED lights.

The elimination of the light fixtures from the BATA contract was approved by the TBPOC at the July 2010 meeting along with a funding transfer of \$3,500,000 from the BATA contract to the SAS contract to procure these fixtures. This funding addressed the 760 light fixtures mounted on light poles but not the 438 fixtures mounted on the SAS cable, tower and bridge deck. Change Order No. 167 will provide for these 438 fixtures to be changed from metal halide lighting to LED. This change will maintain the

architectural consistency of the structure and be consistent with current Caltrans policy to move towards the lower energy consumption LED light.

Change Order No. 167 was approved by the TBPOC at the October 2010 meeting at a preliminary cost not to exceed \$1,200,000. Three bids have now been solicited to perform this work with the lowest responsive bidder resulting in a final change order cost of \$1,555,614. This cost includes an additional 18 fixtures above what was originally estimated and includes additional costs to provide for anticipated field modifications concerning the installation of the fixtures. Approval for the additional \$355,614 in cost is now being requested.

A chronology of the light poles and fixtures for the east span corridor is listed below:

**Chronology of SFOBB East Span Light Poles and Light Fixtures:**

- |           |  |
|-----------|--|
| 2006      | Skyway Structure – Fabrication and installation of light poles eliminated from the contract due to constructability issues.  |
|           | Oakland Touchdown 1 – Fabrication and installation of Light poles and lighting fixtures eliminated from the contract prior to bid.   |
| 2007      | Yerba Buena Island Transition Structure 1 - Fabrication of Light poles and lighting fixtures eliminated from the contract prior to bid.  |
|           | Self-Anchored Suspension Structure - Fabrication of light poles and lighting fixtures eliminated from the contract by letter. Change Order No. 43 pending.   |
| Nov. 2008 | Light poles and pole mounted lighting fixtures for entire east span approved to be furnished by BATA procurement contract.   |
| June 2009 | Oakland Touchdown 1 – Prototype of light poles built and installed with metal halide fixtures and fixture lowering devices.  |
| July 2010 | Pole mounted light fixtures for entire east span eliminated from BATA procurement contract by addendum. Fixture lowering devices eliminated. Fixtures approved to be changed from metal halide to LED lights. Pole |

## *Memorandum*

mounted LED lights to be furnished by SAS contract. (TBPOC Memo attached)

- Sept. 2010     BATA contract awarded to procure light poles for entire east span.
- Oct. 2010     SAS cable, tower and deck mounted light fixtures approved to be changed from metal halide to LED lights.

### **Attachments:**

1. Draft CCO 167
2. Draft CCO 167 Specification
3. July 8, 2010 TBPOC Memo
4. TBPOC July 13, 2010 Meeting Minutes
5. September 27, 2010 TBPOC Memo
6. TBPOC October 7, 2010 Meeting Minutes



**CONTRACT CHANGE ORDER**

Change Requested by: Engineer

---

**CCO: 167    Suppl. No. 0    Contract No. 04 – 0120F4    Road SF-80-13.2/13.9    FED. AID LOC.:**


---

**To: AMERICAN BRIDGE/FLUOR ENTERPRISES INC A JOINT VENTURE**

*You are directed to make the following changes from the plans and specifications or do the following described work not included in the plans and specifications for this contract.*

**NOTE: This change order is not effective until approved by the Engineer.**

---

Description of work to be done, estimate of quantities and prices to be paid. (Segregate between additional work at contract price, agreed price and force account.) Unless otherwise stated, rates for rental of equipment cover only such time as equipment is actually used and no allowance will be made for idle time. This last percentage shown is the net accumulated increase or decrease from the original quantity in the Engineer's Estimate.

---

**Extra Work at Lump Sum:**

Item 1.

Furnish LED light fixtures in lieu of contract specified Metal Halide light fixtures for the 438 fixtures listed on Attachment A on sheet 5 of this change order. This work must meet all the requirements below and the attached revisions to Special Provisions Section 10-3.14 "LIGHTING" on sheets 6 through 13 of this change order.

**I. Supplier Requirements**

1. The selected LED fixture supplier shall be identified with the signed Change Order.
2. The supplier shall provide evidence that they have been in the business of street lighting or exterior large area lighting for a period of not less than 10 years.
3. A list with a minimum of 10 street lighting, or large area lighting projects successfully completed by the supplier shall be included with the signed Change Order. At least two of these projects must be from 8 or more years ago.

**II. Submittals**

The following submittals shall be submitted in the shop drawing process and be approved by the Engineer prior to start of production of the light fixtures. Each item shall be provided in the form of clear and concise statements and/or plans and drawings, which can be easily read and clearly interpreted. Each item shall also be clearly numbered to correspond with the following list. All items shall be assembled in the order indicated and secured or bound in a neat and orderly fashion for easy use and reference.

1. Computer generated illumination levels demonstrating compliance with the specified initial and maintained light levels and uniformities.
2. A copy of the photometric testing report performed per LM-79-08 and conducted by an NVLAP approved or CALiPER qualified testing laboratory. Include documents verifying laboratory accreditation.
3. Test data from the LED supplier taken per LM-80-08 guidelines to support the lamps' lumen maintenance predictions.
4. Provide technical information in the form of cut sheets for the Power Supplies verifying compliance to this specification for Harmonic Distortion, RF Interference, IP Rating, and Efficiency Rating.
5. Supply Surge Protection Device documentation verifying compliance with UL 1449 or UL 1238.
6. A written copy of the supplier's warranty covering all materials, workmanship, and labor for a period of 10 years or greater.

**III. Lighting Criteria**

- A. Computer Predicted Illumination Summaries shall be provided on a 20' x 20' grid illustrating the predicted initial and maintained illumination values and uniformities.
- B. The roadway lighting system shall illuminate the entire deck surface (driving lanes and shoulders) to a minimum of 2.15 initial average footcandles with a 3:1 maximum allowable average to minimum ratio.
- C. The supplier shall apply an L70 (70% lumen maintenance factor) for the maintained illuminance values. Maintained illuminance levels shall be 1.5 average footcandles with a 3:1 average to minimum ratio. The maintained footcandle for Belvedere area shall be 3.0.
- D. In lieu of item III.B, the supplier may employ a constant illumination scheme in which the maintained illumination levels are achieved initially and the output of the fixture is increased over time to assure the illumination levels are always met.
- E. In either case, the supplier must guarantee the illumination levels will be met for the entire warranty period.

**IV. Fixture Design & Construction**

- A. Fixture
  1. Construction

**CONTRACT CHANGE ORDER**

Change Requested by: Engineer

---

**CCO: 167   Suppl. No. 0   Contract No. 04 – 0120F4   Road SF-80-13.2/13.9   FED. AID LOC.:**


---

- a. The luminaire shall consist of an aluminum housing with tempered glass lens, gasketed to seal the internal LED light sources and internal optics. Each LED shall be individually visored to mitigate glare to oncoming traffic and other areas off the bridge deck. The fixture shall be IP-66 rated and the shape shall be closely similar in shape and size to the conceptual design of original contract's metal halide fixtures, unless otherwise approved by the Engineer.
- b. The front face of the housing shall be circular in shape with a smooth conical side view. It shall be of adequate size and mass to provide the necessary heat dissipation to limit the LED junction temperature to 90°C or less at an ambient temperature of 25°C. The LED's shall be circuited such that failure of a single LED does not result in the loss of the entire luminaire.
- c. The fixture assembly must be fabricated with materials and coatings that allow it to withstand a 3,000 hour salt spray test under ASTM B 117, this applies to all fixture types.
- d. Heat dissipation shall be by passive design. Fans or other mechanical cooling devices shall not be permitted.
- e. Heat dissipating fins shall be oriented to minimize the build-up of water or debris on the fixture and allow rain water to freely carry dust and debris away.
- f. If a photoelectric receptacle is to be included, a rain tight cap must be provided. The receptacle must comply with Section 86-6.08B(1), "Photoelectric Unit", of the Standard Specifications.
- g. A quick attaching safety cable shall be affixed to all units to secure the fixture to the mounting cable or pole.
- h. Fixtures shall be painted to match Federal Standard 595B ranges matching the Bridge Paint color.

2. Light Sources

- a. LED color temperature shall have a nominal color temperature of 4,250° Kelvin, +/- 250° K. L70 lumen maintenance of the LED's shall be rated for a minimum of 63,000 hours for all fixtures except for the MAM & MAP fixtures, which are rated for a minimum of 50,000 hours.
- b. The supplier shall supply the LED suppliers test data performed per LM-80-08 guidelines to support the lamps' lumen maintenance.

B. Structural Attachment

1. The individual cable light fixtures shall be designed to match the original contract's mounting configuration and no changes are allowed unless approved by the engineer.
2. The individual fixtures for the light poles shall be assembled to a welded tubular steel assembly that doubles as a wireway.
3. The tubular steel structure, fixtures, and all attachment points shall be designed by the supplier and approved by the Engineer.
4. Wiring for the light pole fixtures shall transition internally from the fixture to the structural attachment and from the structural attachment into the pole. There shall be no external conduits or SO Cords between the fixtures on the tubular steel structure.
5. All mountings and Structural attachments shall be hot-dipped galvanized and then powder coat painted to match the Bridge color.

C. Drivers & Wiring

1. Drivers, Control Boards, & all associated electrical equipment shall be mounted as per the original contract documents for all cable light fixtures, unless approved by the engineer. On the light poles they can be located inside the pole near the bottom across from the handhole opening.
2. Power Supplies shall be rated IP-66 minimum, have an efficiency of not less than 90% when operated at maximum load, and be power factor corrected (minimum 90%).
3. The RF interference of the power supplies and luminaires must meet Class A emission limits per Federal Communications Commission Title 47 Subpart B, Section 15 or EN61000-4-6.
4. The Total Harmonic Distortion (THD) of the power supply and fixtures shall be in compliance with EN61000-3-2.
5. The power supplies shall be rated to operate on a nominal 60 HZ, 480VAC input and rated for operation between temperatures of -25°C – 55°C.
6. The supplier shall supply a Surge Protection Device (SPD) to protect the fixtures from damage or failure due to transient voltages or currents. SPD must conform to UL 1449 or UL 1238, dependent upon the components used in the design.
7. A wire harness shall be provided by the fixture supplier to connect the LED Drivers and associated electrical equipment located at the bottom of the pole to the fixtures mounted at the top of the pole. The harnesses shall have quick connect plugs on both ends for easy installation and replacement of the drivers or fixtures and shall be encased in a plastic corrugated sleeve to protect it from abrasion inside the pole.

**CONTRACT CHANGE ORDER**

Change Requested by: Engineer

---

**CCO: 167    Suppl. No. 0    Contract No. 04 – 0120F4    Road SF-80-13.2/13.9    FED. AID LOC.:**


---

8. All conductors running from the power supplies at the bottom of the pole to the fixtures at the top of the pole shall be run internal to either the pole or the structural attachment of the fixture to the pole. Externally run conduits or SO Cords shall not be permitted.

**D. Testing**

1. Prior to production, the supplier shall provide a sample fixture of each different model they intend to provide for testing and verification. The fixtures must have been previously tested by the supplier for verification of the Junction Temperature (90 C), LED Solder Point Temperature, and ambient air temperature adjacent to the solder point at maximum operating wattage. Placement of temperature sensors shall be as follows:
  - a. One device at the LED solder point to determine Solder Point Temperature.
  - b. One device adjacent to the solder point to measure internal ambient air temperature.
  - c. One device located at the center of the fixture at the point where the LED optical & mechanical assembly attaches to the heat sink.
  - d. Junction Temperature shall be calculated by adding the Solder Point Temperature to the LED supplier's rated thermal resistance in degrees Celsius per Watt.
2. The supplier shall supply their test data to the Department along with the production sample. Data shall include:
  - a. Maximum allowable operating power to the LED board in watts.
  - b. Input voltage to the fixture when the testing was conducted at the supplier's facility.
  - c. The LED supplier's rated thermal resistance of the LED in degrees Celsius per Watt.
3. All measurements shall be taken after the fixture has operated at maximum rated wattage for a minimum of 24 hours at an ambient temperature of 70 °F (21 °C) or greater.

**V. Warranty for the LED fixtures and all related components procured under this change order:**

- A. The supplier shall warrant or insure the products to be free from defects in materials and workmanship for a period of not less than 10 years. This warranty or insurance shall cover all materials and labor (including removal & installation) during the 10-year period.
- B. In the event that a fixture needs to be repaired or replaced within the 10-year warranty period, The Department will be responsible for the costs associated with lane closures & traffic control. The supplier shall be responsible for all costs associated with repair and/or replacement of the fixture including the necessary lifts and labor.
- C. The Supplier's warranty or insurance policy will be provided directly from the Supplier to the Department. Upon acceptance of the Work, the Department agrees to release the Contractor (ABFJV) and the electrical subcontractor (Bleyco Electric) from any and all liability, loss or damage, which may result directly or indirectly from any defects in materials or workmanship in the LED fixtures and all related components procured under this change order.

The scope described above and attached specifications for this change order shall govern over the contract Special Provisions, Standard Specifications and Standard Plans where any conflict exists.

For this work, the Contractor will receive a lump sum price of estimated \$1,456,614.00. This sum constitutes full and complete compensation for furnishing all labor, material, tools and incidentals including all markups by reason of this change. The installation cost for all fixtures are already included in the original contract scope of work.

Extra Work at Lump Sum.....\$1,456,614.00

**Extra Work at Force Account:**

Item 2.

For any minor additional work as directed by the Engineer, necessary for fabrication and installation of the fixtures & other components, which cost is not covered by the lump sum amount above and the original scope of the contract.

Labor, equipment and material authorized by the Engineer, as necessary, will be paid in accordance with the provisions of Section 4-1.03D, "Extra Work" of the Standard Specifications and Section 5-1.24, "Force Account Payment" of the Special Provisions.

Estimated Cost of Extra Work at Force Account.....\$100,000.00



**CONTRACT CHANGE ORDER**

Change Requested by: Engineer

CCO: 167	Suppl. No. 0	Contract No. 04 – 0120F4	Road SF-80-13.2/13.9	FED. AID LOC.:
----------	--------------	--------------------------	----------------------	----------------

**CHANGE ORDER COST AND TIME SUMMARY**

(ITEM 1) Extra Work at Lump Sum.....	\$1,456,614.00
(ITEM 2) Extra Work at Force Account	\$100,000.00
Total net pay for this change order	\$1,556,614.00

This sum constitutes full and complete compensation for furnishing all labor, material, tools and incidentals including all markups by reason of this change.

Estimated Cost: Increase ☒ Decrease ☐ \$1,556,614.00

By reason of this order the time of completion will be adjusted as follows: 0 Days

**Submitted by**

Signature	Resident Engineer	Kannu Balan, Senior T.E.	Date
-----------	-------------------	--------------------------	------

**Approval Recommended by**

Signature	Supervising Bridge Engineer	Brian Boal, Actg. Sup. B.E.	Date
-----------	-----------------------------	-----------------------------	------

**Engineer Approval by**

Signature	Principal Transportation Engineer	Peter Siegenthaler, Prin. T.E.	Date
-----------	-----------------------------------	--------------------------------	------

We the undersigned contractor, have given careful consideration to the change proposed and agree, if this proposal is approved, that we will provide all equipment, furnish the materials, except as otherwise be noted above, and perform all services necessary for the work above specified, and will accept as full payment therefor the prices shown above.

**NOTE: If you, the contractor, do not sign acceptance of this order, your attention is directed to the requirements of the specifications as to proceeding with the ordered work and filing a written protest within the time therein specified.**

**Contractor Acceptance by**

Signature	(Print name and title)	Date
-----------	------------------------	------

**CONTRACT CHANGE ORDER**

Change Requested by: Engineer

**CCO: 167    Suppl. No. 0    Contract No. 04 – 0120F4    Road SF-80-13.2/13.9    FED. AID LOC.:**
**Attachment A**
**480V MAD, MAR, MAT, MAU, MSR, MAM, MSV, MAP FIXTURES  
QUANTITIES AND NOTES**

FIXTURE TYPE	LAMP WATTAGE	QUANTITY	TENON MOUNT	WALL MOUNT	SUSPENSION CABLE	ROADWAY POLE	SUSPENDER BRACKET		Other	GENERAL LOCATION
							TYPE I	TYPE II		
MAD- 2C	400	42			42					downlights on
MAD- 3C	250	24			24					suspension cable
MAD- 4C	175	18			18					
MAR- 2-PB	400	4	4							lights on pier
MAR- 2A-PB	400	8	8							
MAT- 1A	1000	16	16							fixtures on bridge
MAT- 1B	1000	8	8							deck and crossbeam
MAT- 1C	1000	4	4							
MAT- 3D	250	8	8							
MAT- 3RC	250	8		8						
MAU- 2A	400	4							4	uplights inside pylon
MAU- 2D	400	80					52	28		uplights on
MAU- 3D	250	48					48			suspender brackets
MAU- 4D	175	30					30			
MAU- 5D	100	8	8							
MSR- 2C	400	31			31					roadway lights on
MSR- 2A-C	400	4			4					suspension cable
MSR- 2B-C	400	15			15					
MSR-	400	48				48				roadway lights
										on poles
MAM- 3	250	12				12				marker light on pole
MSV	2-35	16				16				Belvedere bike path pole
MAP	250	2							2	Tower Top
TOTALS		438	56	8	134	76	130	28	6	

**CONTRACT CHANGE ORDER NO. 167 SUPPL. NO. ---**  
ROAD 04-SF-80-13.2, 13.9 SHEET OF 13 SHEETS  
FEDERAL NO.(S) CONTRACT NO.: 04-0120F4

In Special Provisions Section 10-3.14 insert the following after the last subsection "TESTING":

#### **GENERAL LED LUMINAIRE REQUIREMENTS**

The following general LED luminaire requirements shall apply to all fixtures for this change order unless otherwise specified by application.

##### **Definitions**

**CALiPER:** Commercially Available LED Product Evaluation and Reporting. A US DOE program for the testing and monitoring of commercially available LED luminaires and lights.

**correlated color temperature:** A visible light characteristic of comparing a light source to a theoretical heated black body radiator. Measured in Kelvin.

**footcandle:** Unit of illuminance; a measurement of light.

**IP:** International Protection rating, sometimes referred to as ingress protection, that delineates the level at which foreign objects and water can intrude inside a device.

**L70:** The extrapolated life in hours of the luminaire when the luminous output depreciates 30 percent from initial values.

**NVLAP:** National Voluntary Laboratory Accreditation Program under the US DOE to accredit independent testing laboratories to qualify.

**power factor:** Ratio of the real power component to the total, complex, power component.

**surge protection device:** A subsystem or component that can protect the unit against short duration voltage and current surges.

**Transportation Electrical Equipment Specifications:** A package of standard specifications for transportation related electrical equipment to be used on State Highways. This document is compiled by the Department.

**total harmonic distortion:** Amount of higher frequency power on the power line.

##### **Submittals**

All luminaires are subject to initial acceptance testing prior to main delivery. Main deliveries may be subject to additional random sample testing.

Submit test units to the Department after the manufacturer's testing is completed. Include the manufacturer's testing data.

Product submittals must be accompanied by:

1. Product specification sheets or other documentation that includes the designed parameters as detailed in the specification. The parameters include:
  - 1.1. Maximum power in watts
  - 1.2. Maximum designed junction temperature for the specific luminaire model
  - 1.3. L70 in hours when extrapolated for the average nighttime operating temperature
2. IES LM-79 and IES LM-80 compliant test reports from a CALiPER-qualified or NVLAP-approved testing laboratory for the specific model submitted.
3. Photometric file (IES) based on LM-79 test report.
4. Initial and End-of-Life lighting simulations showing lighting levels on the roadway for east bound and west bound directions.
5. Test report showing surge protection device (SPD) performance as tested under ANSI/IEEE C62.41.2 and ANSI/IEEE C62.45.
6. Test report showing mechanical vibration test results as tested under a modified California Test 611 as described below.
7. Datasheets from the LED manufacturer that includes information on life expectancy based on junction temperature.
8. Datasheets from power supply manufacturer that includes life expectancy information.



**CONTRACT CHANGE ORDER NO. 167 SUPPL. NO. ---**  
ROAD 04-SF-80-13.2, 13.9 SHEET OF 13 SHEETS  
FEDERAL NO.(S) CONTRACT NO.: 04-0120F4

### Quality Control and Assurance

The luminaires must be manufactured under the manufacturer's quality assurance program. The program must include (1) production quality assurance and (2) design quality assurance.

Production quality assurance must include statistically-controlled routine tests to ensure minimum performance levels of the modules built to meet this specification and a documented process for resolving problems. The process and test results documentation must be kept on file for a minimum of 7 years.

Design quality assurance must be performed by the manufacturer or an independent testing lab hired by the manufacturer on new luminaire. The sample luminaires must be energized for a minimum of 24 hours, at 100 percent on-time duty cycle, at a temperature of +70 °F before performing any design qualification testing.

One initial test unit shall be fitted with temperature sensors (either thermistor or thermo-couple). Temperature sensors shall be mounted on the LED solder pads as close to the LED as possible. One temperature sensor shall be mounted on the power supply (driver) case. Light bar or modular systems shall have one sensor for each module, mounted as close to the center of the module. Other configurations shall have at least 5 sensors per luminaire. Contact Caltrans for advice on sensor location. Thermocouples will be either Type K or Type C. Thermistors shall be negative temperature coefficient (NTC) type with a nominal resistance of 20k ohm. The appropriate thermocouple wire shall be used. The leads shall be a minimum of 6 ft. Documentation shall accompany the test unit that details the type of sensor used.

Any failure of the luminaire that renders the unit non-compliant with the specification after burn in must be rejected.

The luminaire must be tested under California Test No. 678 and as specified. Luminaire performance must be judged against the specified minimum illuminance in the specified pattern for a particular application. The luminaire lighting performance must be adjusted, depreciated, for the minimum operating life. The performance must be adjusted, depreciated, by using the LED manufacturer's data or the data from the LM-80 test report, whichever results in a higher level of lumen depreciation.

The Department may perform random sample testing on all shipments. Testing will be completed within 30 days after delivery to the Transportation Laboratory. Luminaires will be tested under California Test No. 678 and as specified. All parameters of the specification may be tested on the shipment sample.

### Materials

#### General

The luminaire consists of an assembly that uses LEDs as the light source. In addition, a complete luminaire consists of a housing, an LED array, an electronic driver (power supply), and all associated electronics components. The luminaire must comply with the following requirements:

1. UL listed under UL 1598 for luminaires or an equivalent standard from a recognized testing laboratory
2. Have a minimum operational life is 63,000 hours, unless otherwise noted
3. Expected to operate at an average operating time of 11.5 hours per night
4. Designed to operate at an average nighttime operating temperature of 15°C (60 °F)
5. Have an operating temperature range from -25 °C – 55 °C (-13 °F to +130 °F).

The individual LEDs must be connected such that a catastrophic loss or a failure of 1 LED will not result in the loss of the entire luminaire.

#### Luminaire Identification

Each luminaire must have the following identification permanently marked inside the unit and outside of its packaging box:

1. Manufacturer's name
2. Trademark
3. Model number
4. Serial number
5. Date of manufacture (month-year)

**CONTRACT CHANGE ORDER NO. 167 SUPPL. NO. ---**  
 ROAD 04-SF-80-13.2, 13.9 SHEET \_\_\_ OF 13 SHEETS  
 FEDERAL NO.(S) \_\_\_\_\_ CONTRACT NO.: **04-0120F4**

6. Lot number

The rated voltage and rated power (in watts) must be permanently marked inside each unit.

## Photometric Requirements

Photometric performance shall depend on the application of the luminaire. See the application for these requirements.

The luminaire must have a correlated color temperature in the range of 4,000K to 4,500K

The color rendition index must be 70 or greater.

## Thermal Management

The thermal management of the heat generated by the LEDs must be of sufficient capacity to assure proper operation of the luminaire over the minimum operation life. The LED manufacturer's maximum junction temperature for the minimum operation life must not be exceeded. The maximum allowed junction temperature is 90 °C.

The junction-to-ambient thermal resistance must be 35 °C per watt or less. Thermal management must be passive by design. The use of fans or other mechanical devices is not allowed. The heat sink material must be aluminum or other material of equal or lower thermal resistance.

## Physical and Mechanical Requirements

The housing must be fabricated from materials that are designed to withstand a 3000-hour salt spray test under ASTM B 117. All aluminum used in housings and brackets shall be a marine grade alloy with less than 0.2% copper. All aluminum shall be anodized.

Each refractor or TIR lens must be made from UV-inhibited high impact plastic (such as acrylic or polycarbonate) or heat and impact resistant glass, and be resistant to scratching.

Paint or powder coating of the housing must comply with Section 86, "Electrical Systems," of the Standard Specifications. A chromate conversion undercoating shall be used underneath a thermoplastic polyester powder coat.

The luminaire must be a single, self-contained device, not requiring on-site assembly for installation.

The assembly and manufacturing process for the LED luminaire must be designed to assure all internal components are adequately supported to withstand mechanical shock and vibration from high winds and other sources. The luminaires and mounting device, when tested under a modified California Test 611, must be capable of withstanding the following cyclic loadings in units of acceleration of gravity, G:

1. Vertical plane (z axis) at a minimum peak acceleration level of 3.0 G peak-to-peak sinusoidal loading (same as 1.5 G peak), for a minimum of 2 million cycles without failure of any luminaire parts
2. Horizontal plane (x axis) at a minimum peak acceleration level of 1.5 G peak-to-peak sinusoidal loading (same as 0.75 G peak), for a minimum of 2 million cycles without failure of any luminaire parts
3. Horizontal plane (y axis) at a minimum peak acceleration level of 1.5 G peak-to-peak sinusoidal loading (same as 0.75 G peak), for a minimum of 2 million cycles without failure of any luminaire parts

The housing must be designed to prevent the build up of water on the top of the housing. Exposed heat sink fins must be oriented to allow the water to freely run off the luminaire and carry dust and other accumulated debris away from the unit.

The optical assembly of the luminaire must be protected against dust and moisture intrusion per the minimum requirements of IP-66.

The electronics/power supply enclosure must be protected per the minimum requirements of IP-55.

Field wires connected to the luminaire must terminate on a barrier type terminal block secured to the housing. The terminal screws must be captive and equipped with wire grips for conductors up to No. 6. Each terminal position must be clearly identified. Weather-tight connectors, approved by the Engineer, may be used.

**CONTRACT CHANGE ORDER NO. 167 SUPPL. NO. ---**  
ROAD 04-SF-80-13.2, 13.9 SHEET OF 13 SHEETS  
FEDERAL NO.(S) CONTRACT NO.: 04-0120F4

#### **Power Supply Electrical**

The power supply shall be able to operate on a standard 60 Hz  $\pm 3$  Hz AC line with a nominal voltage of 480 VAC between ungrounded conductors.

The power factor shall be 0.90 or greater,

Total harmonic distortion (current and voltage) induced into an AC power line must not exceed 20 percent.

The power supply shall be rated for outdoor operation. The power supply shall have a minimum IP rating of IP65.

The power supply shall be rated for a minimum operational life equal to the minimum operation life of the luminaire, or greater.

The power supply case temperature must have a self rise of 25° C or less above ambient temperature in free air with no additional heat sinks.

The power supply must support remote location of up to 100 feet distance from the luminaire. The power supply manufacturer will supply information on recommended wire sizes to achieve the remote location.

The 480V drive (power supply) must support industry standard 0 to 10 V DC control.

#### **Surge Suppression and Electromagnetic Interference**

The luminaire must include a surge suppression device to withstand high repetition noise transients as a result of utility line switching, nearby lightning strikes, and other interference. The surge suppression device must protect the luminaire from damage and failure for transient voltages and currents as defined in ANSI/IEEE C64.41.2 (Tables 1 and 4) for Location Category C-High. The surge suppression device must conform to UL 1449 or UL 1283, depending of the components used in the design. Surge suppression device performance must be tested under ANSI/IEEE C62.41.45 based on ANSI/IEEE C62.41.2 definitions for standard and optional waveforms for Location Category C-High. The surge suppression device may be external to the power supply. For remotely located power supplies, the surge suppression device shall be located adjacent to the power supply.

The luminaires and associated on-board circuitry must meet EN61000-4-6 or Class A emission limits under FCC Title 47, Subpart B, Section 15 regulations concerning the emission of electronic noise.

#### **Compatibility**

The luminaire must be operationally compatible with currently used lighting control systems and photoelectric controls.

#### **Roadway Luminaires Types MSR**

Pole and cable mounted roadway luminaires shall be light emitting diode (LED) floodlights with a mounting suitable for the location shown on the plans.

The face of the fixture shall be circular in shape, similar to the conceptual design plans. A prototype luminaire shall be submitted for architectural approval prior to delivery.

Each roadway and suspender cable luminaire shall be equipped with a fully adjustable aiming device necessary to achieve the specified light levels and uniformities. Aiming device shall be as shown on the plans or equal, allowing for at least 3 axis of movement ( $\pm 90$  degrees) for aiming. Mounting devices shall be approved by the engineer.

The mounting device shall have easily read etched or stamped angle markings at the pivot points.

Mounting device and hardware shall be Type 316 stainless steel, or of other material of sufficient strength and corrosion resistance

Luminaire, mounting device and hardware shall be powder coated with a white finish as selected by the architect.

Luminaires shall be fully assembled, and ready for installation.

#### **Electrical/Photometric Requirements**

Roadway Luminaires shall come in no more than two wattages (max wattages: 300 w and 200 w) and no more than three beam configurations for a total of six different roadway luminaires (similar to original metal halide plans), unless needed and approved by engineer to meet the photometric requirements listed below, a

**CONTRACT CHANGE ORDER NO. 167 SUPPL. NO. ---**  
ROAD 04-SF-80-13.2, 13.9 SHEET OF 13 SHEETS  
FEDERAL NO.(S) CONTRACT NO.: 04-0120F4

table of roadway luminaire types is provided with the original metal halide information. As part of the product submittal, the supplier shall complete the table with the required information for the LED luminaires. Photometric requirements are that the roadway luminaires maintain an average of 1.5 foot-candles for the minimum operational life of the luminaires. Uniformity shall be limited by a MAX to MIN ratio of 10 to 1, and an AVE to MIN ratio of 3 to 1. A table of roadway luminaire installations is provided with original metal halide details. The supplier shall complete the table with the required information for the LED luminaire installations and final aiming coordinates. The supplier shall specify the type and quantity of LED luminaires to achieve the required photometric performance

Supplier shall provide computer generated point by point lighting calculations showing that luminaire types and quantities will meet the required performance at installation and throughout minimum operational life.

For pole mounted luminaires, the driver and all associated electronics shall be located in the base of the pole.

For cable mounted luminaires, the power supply shall be located in a box on the cable clamp/platform.

**Roadway Luminaires (YSR, MSR, SSR, OSR))**

Luminaire Type	Original Metal Halide					LED Luminaire		
	Wattage*	Beam Angle	Field Angle	NEMA	Quantity	Wattage	Beam Designation	Quantity
xSR-2	400	5 x 5	15 x 15	1h x 1v	192			
xSR-2a	400	35 x 6	50 x 12	4h x 1v	4			
xSR-2b	400	50 x 50	95 x 95	5h x 5v	238			
xSR-3	250	5 x 5	15 x 15	1h x 1v	153			
xSR-3a	250	35 x 6	50 x 12	4h x 1v	84			

**Pole Mounted Marker Lights Type MAM**

Pole mounted marker light fixture shall be a 200 mm diameter (approx) lantern using LEDs as the light source. Each fixture shall be shipped fully assembled, furnished with lamps, power supply, transformer, and base and fixture caps, and shall comply with the following requirements.

The fixture shall be cylindrical in shape, similar to the conceptual design plans. A prototype luminaire shall be submitted for architectural approval prior to delivery.

Each fixture shall have a maximum power consumption of 125 watts.

The fixture shall be IP-66 rated and be constructed of materials and coatings to allow it to pass a 3,000 hour salt spray test per ASTM B 117.

The driver shall be IP-65 rated and remote mounted at the base of the pole with the roadway lighting drivers. The manufacturer shall supply a wire harness to connect the driver at the bottom of the pole to the fixture at the top of the pole.

The fixture, driver, and wire harness shall have quick-connect electrical connections. The harness shall be encased in a corrugated plastic tubing to protect the wires from abrasion from the inside of the pole.

**Housing Material**

Housing shall consist of anodized aluminum base plate with an anodized aluminum mounting cylinder and a removable anodized aluminum cape secured to the fixture with a threaded cap anchor. Aluminum shall be a marine grade alloy with less than 0.2% copper.

Fixtures shall be equipped with a cast mounting base, suitable for surface mounting to the Roadway Lighting Pole top. Mounting hardware shall be Type 316 stainless steel.

Fixtures shall be UL listed for use in wet locations.

**Photometric Requirements**

The fixture shall provide a minimum intensity of 500 candelas at any point on the horizontal plane and have a minimum beam angle of 60 degrees (between the angles of 30 degrees above and below the horizon) for a minimum operational life of 50,000 hours.



**CONTRACT CHANGE ORDER NO. 167 SUPPL. NO. ---**  
ROAD 04-SF-80-13.2, 13.9 SHEET OF 13 SHEETS  
FEDERAL NO.(S) CONTRACT NO.: 04-0120F4

Marker Lights (YAM, MAM, SAM, OAM, MAP)

Luminaire Type	Original Metal Halide					LED Luminaire		
	Wattage*	Beam Angle	Field Angle	NEMA	Quantity	Wattage	Beam Designation	Quantity
xAM-3	250				80			
xAM-4	175				28			
xAM-5	100				43			
xAM-6	60				21			
MAP	400				2			

**Belvedere Lights Type MSV**

Belvedere light fixtures shall be light emitting diode (LED) fixtures with a mounting suitable for the location shown on the plans.

Luminaire, mounting device and hardware shall be powder coated with a white finish as selected by the architect.

Fixtures shall be equipped with a fully adjustable mounting method to achieve the necessary horizontal and vertical aiming angles (mounting device). Fixture and power supply shall be suitable for surface and pole mounted applications.

Mounting device and hardware shall be Type 316 stainless steel, or of other material of sufficient strength and corrosion resistance.

**Electrical/Photometric Requirements**

Belvedere luminaires shall consume no more than 35 watts including power supply. A table of luminaire types is provided with the original metal halide information. The supplier shall complete the table with the required information for the LED luminaires.

The maintained footcandle for Belvedere area to be 3.0, over the minimum operational life. The beam spread shall be equivalent to NEMA 3H x 3V pattern or whatever deemed necessary to provide adequate coverage on the area and approved by the engineer.

The power supply shall be remotely located from the luminaire in the box on the belvedere poles as shown on the plans.

Belvedere Luminaires (MSV)

Luminaire Type	Original Metal Halide					LED Luminaire		
	Wattage*	Beam Angle	Field angle	NEMA	Quantity	Wattage	Beam Designation	Quantity
MSV	35	30 x 30		3h x 3v				

**Suspender Uplight Luminaires Type MAU And Cable Mounted Suspender Downlight Luminaires Tupe MAD-C**

Suspender uplight luminaires and cable mounted suspender downlight luminaires (suspender luminaires) shall be light emitting diode (LED) fixtures with a mounting suitable for the location shown on the plans.

The shape of the luminaire shall be as shown on the plans. A prototype luminaire shall be submitted for architectural approval prior to delivery.

Each roadway and suspender cable luminaire shall be equipped with a fully adjustable aiming device necessary to achieve the specified light levels and uniformities. Aiming device shall be as shown on the plans or equal, allowing for at least 3 axis of movement (+/- 90 degrees) for aiming. Mounting devices shall be approved by the engineer.

The mounting device shall have easily read etched or stamped angle markings at the pivot points.

**CONTRACT CHANGE ORDER NO. 167 SUPPL. NO. ---**  
ROAD 04-SF-80-13.2, 13.9 SHEET OF 13 SHEETS  
FEDERAL NO.(S) CONTRACT NO.: 04-0120F4

Mounting device and hardware shall be Type 316 stainless steel, or of other material of sufficient strength and corrosion resistance.

Luminaire, mounting device and hardware shall be powder coated with a white finish as selected by the architect.

Luminaires shall be fully assembled, and ready for installation.

#### **Electrical/Photometric Requirements**

Suspender luminaires shall come in no more than 4 wattages and only one beam configuration for a maximum of five different suspender luminaires (similar to original metal halide plans), unless needed and approved by engineer to meet the photometric requirements listed below. A table of suspender luminaire types is provided with the original metal halide information. The supplier shall complete the table with the required information for the LED luminaires.

Photometric requirements are that the suspender luminaires have a narrow beam

Supplier shall provide simulations showing that luminaire types and quantities will meet the required performance at installation and throughout the minimum operational life.

For all suspender luminaires, the power supply shall be located in a box on the cable clamp/platform (for cable mounted) or in a box on the suspender cable attachment. See plans for more details.

#### **Main Tower Floodlights Types MAR And MAT**

Main tower floodlight fixtures shall be surface, wall or tenon mounted, rectangular shaped, LED floodlight fixtures with mounting brackets, mounting suitable for locations shown on the plans. Fixtures shall be fully assembled, one piece cast aluminum, suitable for marine use, furnished with LED, power supply, and optics.

A prototype luminaire shall be submitted for architectural approval prior to delivery.

Housings shall be one-piece cast aluminum with integrally cast heat dissipating fins.

Luminaire, mounting device and hardware shall be powder coated with a white finish as selected by the architect.

The power supply shall be integral with the lighting fixture, internally mounted in a corrosion resistant cast aluminum finned box with a weather-resistant E.D.P.M. gasket.

Each luminaire shall be equipped with a fully adjustable mounting yoke and adjustable pivot bracket aiming system (mounting device). Mounting device shall be as shown on the plans or equal, allowing for at least 3 axis of movement (+/- 90 degrees) for aiming. Mounting devices shall be approved by the engineer.

The mounting device shall have easily read etched or stamped angle markings at the pivot points.

Mounting device and hardware shall be Type 316 stainless steel, or of other material of sufficient strength and corrosion resistance.

#### **Electrical/Photometric Requirements**

Tower floodlight luminaires shall come in no more than four wattages and four beam configurations for a maximum of six different main tower floodlights (similar to original metal halide plans), unless needed and approved by engineer to meet the photometric requirements listed below. A table of main tower floodlight types is provided with the original metal halide information. The supplier shall complete the table with the required information for the LED luminaires.

#### **Main Tower Marker Lights Type MAP**

Main tower marker light fixture shall be a 300 mm diameter (approx) lantern using LEDs as the light source. Each fixture shall be shipped fully assembled, furnished with lamps, power supply, transformer, and base and fixture caps, and shall comply with the following requirements.

Each fixture shall have a maximum power consumption of 200 watts.

The fixture shall be IP-66 rated and be constructed of materials and coatings to allow it to pass a 3,000 hour salt spray test per ASTM B 117.

The driver shall be IP-65 rated and remote mounted in a NEMA 4R enclosure mounted on the main tower at a location determined by the Engineer. The manufacturer shall supply a wire harness to connect the driver in the enclosure to the fixture at the top of the tower.

The fixture, driver, and wire harness shall have quick-connect electrical connections. The harness shall be encased in a corrugated plastic tubing to protect the wires from abrasion from the inside of the pole.

FEDERAL NO.(S)

The fixture shall provide a minimum intensity of 1,000 candelas at any point on the horizontal plane and have a minimum beam angle of 60 degrees (between the angles of 30 degrees above and below the horizon) for a minimum operational life of 50,000 hours.

## *Memorandum*

**TO:** Toll Bridge Oversight Committee (TBPOC)    **DATE:** July 8, 2010

**FR:** Tony Anziano, Toll Bridge Program Manager, Caltrans

**RE:** Agenda No. - 4d1  
Item                      San Francisco-Oakland Bay Bridge Updates  
                                 Mechanical, Electrical & Piping (MEP) - Bridge Lighting  
                                 Assembly Procurement Contract Addendum No. 1

---

**Recommendation:**  
**APPROVAL**

**Cost:**  
None

**Schedule Impacts:**  
None

**Discussion:**

In accordance with the Mechanical, Electrical & Piping (MEP) Integration Strategy memo which was approved by the TBPOC at the November 2008 meeting, BATA is currently advertising a contract to procure the bridge light assemblies (poles & fixtures) for the new SFOBB east span. It is proposed an addendum be issued with 5 items, 4 of which provide minor clarifications to the contract with the 5<sup>th</sup> item providing for the elimination of the procurement of the light fixtures from that contract.

The light fixtures would be eliminated in order to change the current metal halide light to a LED light. This change would be consistent with current Caltrans policies to move towards the lower energy consuming LED light. The change would also improve the quality of the bridge lighting which requires directional lights spanning across the 5 lanes of traffic from the center of the bridge.

The BATA procurement contract is scheduled for an August 2010 bid opening. It is anticipated that the procurement of the LED fixtures would be performed under the SAS contract. The estimated procurement cost of \$3,500,000 would be transferred from the funding previously approved for the BATA procurement contract to the SAS



## *Memorandum*

contract with no net cost impact. Cost savings from the previously eliminated fixture lowering system are anticipated to offset any increased cost of the LED fixtures.

**Attachment(s):**

SFOBB MEP Integration Strategy Spreadsheet

# SFOBB MEP Integration Strategy (CONFIDENTIAL)

7/13/2010

	Segregation of Work	Approximate Costs	Revised Cost	Comments
<b>A</b>	<b>Furnish Light Poles &amp; Fixtures (BATA Contract)</b>			
ITEM 1A	Furnish Light Poles & Fixtures (estimate is done by Caltrans Design)	\$15,300,000.00	\$11,800,000.00	Estimated cost savings of \$3,500,000 is anticipated due to elimination of the lowering device, all lighting fixtures and electrical components. LED light fixtures and all of electrical components will be added to item 1B below as part of installation CCO.
ITEM 2A	Storage Cost	\$1,500,000.00	\$1,500,000.00	No Change
	Contingency (Included in the above)			
	<b>Total Estimated Cost To Furnish Light Poles &amp; Fixtures (BATA Contract)</b>	<b>\$16,800,000.00</b>	<b>\$13,300,000.00</b>	Reduced by \$3.5M
<b>B</b>	<b>MEP Integration Work Installation (Proposed CCO to SAS)</b>			
ITEM 1B	Install Light Poles (Skyway and OTD1)	\$2,000,000.00	\$5,500,000.00	Estimated cost increase of \$3,500,000 is added to this item for procurment and instaletion of light fixtures (LED fixtures) and all of the electrical components, which is being eliminated from BATA contact above.
ITEM 2B	Installation of MEP items eliminated from Skyway & OTD1	\$8,000,000.00	\$8,000,000.00	No Change
ITEM 3B	Upgrades & Revisions of the already installed components (Skyway & OTD1)	\$2,500,000.00	\$2,500,000.00	No Change
ITEM 4B	Installation of BASE System (conduits & Cabinets within Skyway & OTD1)	\$2,000,000.00	\$2,000,000.00	No Change
ITEM 5B	Contingency	\$2,900,000.00	\$2,900,000.00	No Change (contingency for revised cost on item 1B was included in that item)
	<b>Total Estimated Cost For Installation</b>	<b>\$17,400,000.00</b>	<b>\$20,900,000.00</b>	No Change
<b>Total for Light Poles &amp; MEP Integration Work (within Skyway &amp; OTD1)</b>		<b>\$34,200,000.00</b>	<b>\$34,200,000.00</b>	No Change
<b>C</b>	<b>System Wide Testing (Entire Corridor) (Proposed future CCO to SAS)</b>			
ITEM 1C	System wide (Entire Corridor) testing, Relay Setting, SCADA development & commissioning	\$3,000,000.00		No Change
ITEM 2C	Resolution of system wide testing issues (for entire corridor)	\$1,500,000.00		No Change
ITEM 3C	Contingency (20%)	\$900,000.00		No Change
	<b>Total Estimated Cost Of System wide Testing</b>	<b>\$5,400,000.00</b>		No Change
<b>D</b>	<b>Complete BASE System (Entire Corridor)</b>			
ITEM 1D	Hardware (about 150 cameras, interface box and decoder for each camera / wiring)	\$3,000,000.00		No Change
ITEM 2D	Installation cost (Camera & Hardware)	\$1,500,000.00		No Change
ITEM 3D	New dedicated fiber line in both structures with 2 loops (installed)	\$2,000,000.00		No Change
ITEM 4D	Contingency (20%)	\$1,300,000.00		No Change
	<b>Total Estimated Cost for BASE System</b>	<b>\$7,800,000.00</b>		No Change
<b>Total Additional Funds Needed</b>		<b>\$13,200,000.00</b>		No Change



# TOLL BRIDGE PROGRAM OVERSIGHT COMMITTEE

CALTRANS BAY AREA TOLL AUTHORITY CALIFORNIA TRANSPORTATION COMMISSION

## MEETING MINUTES

July 13, 2010, 9:00 AM – 10:00 PM  
Public Information Office, Building 1, Room 169  
410 Avenue of the Palms, Treasure Island, CA

**Attendees:** TBPOC Members: Steve Heminger, Bimla Rhinehart, and Cindy McKim  
PMT Members: Tony Anziano, Andrew Fremier, and Stephen Maller  
Participants: Ade Akinsanya, Bill Casey, Michele DiFrancia, Mike Forner, Beatriz Lacson, Rick Land, Peter Lee, Bart Ney, Dina Noel, Bijan Sartipi, Ken Terpstra, Jon Tapping, and Jason Weinstein

Convened: 9:55 AM

Items		Action
1.	<b>CHAIR'S REPORT</b> <ul style="list-style-type: none"><li>S. Heminger, the Chair, welcomed all attendees to Treasure Island.</li></ul>	
2.	<b>CONSENT CALENDAR</b> <ul style="list-style-type: none"><li>a. TBPOC Meeting Minutes<ul style="list-style-type: none"><li>1) June 3, 2010 Meeting Minutes</li><li>2) June 28, 2010 Conference Call Minutes</li></ul></li><li>b. Contract Change Orders (CCOs)<ul style="list-style-type: none"><li>1) Yerba Buena Island Detour CCO 105-S1 (Steel Fabrication for Viaduct Design Modifications), \$250,000</li><li>2) Self-Anchored Suspension (SAS) Superstructure CCO 139 (Partial for Mitigation Opportunities of East End Fabrication Strategy), \$402,364.16 (for a total of \$17,402,364.16)</li></ul></li></ul>	<ul style="list-style-type: none"><li>The TBPOC <b>APPROVED</b> the Consent Calendar, as presented.</li></ul>
3.	<b>PROGRESS REPORTS</b> <ul style="list-style-type: none"><li>a. Final June 2010 Project Progress and Financial Update<ul style="list-style-type: none"><li>A. Fremier presented, for TBPOC information, the Final June 2010 Project Progress and Financial Update. The PMT approved the</li></ul></li></ul>	<ul style="list-style-type: none"><li>The TBPOC confirmed <b>APPROVAL</b> of the Final June 2010 Project Progress and Financial Update by the PMT</li></ul>

(continued)

Items	Action
<p>report through TBPOC-delegated authority and was released on July 7. TBPOC confirmation of this approval was requested.</p>	<p>through TBPOC-delegated authority.</p>
<p><b>4. SAN FRANCISCO-OAKLAND BAY BRIDGE (SFOBB) UPDATES</b></p> <p>a. Yerba Buena Island Detour (YBID)</p> <p>1) Update</p> <ul style="list-style-type: none"> <li>T. Anziano indicated that the project may be completed by October 2010, two months early per current schedule.</li> </ul> <p>b. Yerba Buena Island Transition Structures (YBITS) No. 1</p> <p>1) Update</p> <ul style="list-style-type: none"> <li>T. Anziano noted that YBITS No. 1 contractor MCM is moving in as YBID winds down.</li> </ul> <p>c. Oakland Touchdown (OTD) No. 1</p> <p>1) Update</p> <ul style="list-style-type: none"> <li>T. Anziano reported that OTD No. 1 project acceptance occurred on June 10, 2010.</li> </ul> <p>d. Mechanical, Electrical &amp; Piping (MEP) Update</p> <p>1) Bridge Lighting Assembly Procurement Contract Addendum No. 1</p> <ul style="list-style-type: none"> <li>T. Anziano presented, for TBPOC approval, Bridge Lighting Assembly Procurement Contract Addendum No. 1, which provides minor clarifications to the contract and the elimination of the procurement of light fixtures, in order to review additional fixture options. This will be obtained under a BATA procurement contract.</li> </ul>	<ul style="list-style-type: none"> <li>The TBPOC <b>APPROVED</b> the Bridge Lighting Assembly Procurement Contract Addendum No. 1, as presented.</li> </ul>
<p><b>5 DUMBARTON/ ANTIOCH BRIDGE RETROFIT UPDATE</b></p>	




(continued)

Items	Action
<ul style="list-style-type: none"><li>• T. Anziano reported that final legal analysis is ongoing and decision on the Dumbarton bidding protest will be forthcoming.</li><li>○ After decision is determined, mobilization is anticipated within 30 to 60 days.</li><li>○ Allocation of \$75 million for this project is scheduled for the July 28 BATA meeting.</li><li>• T. Anziano stated that the Antioch Bridge Retrofit Project has mobilized.</li></ul>	
<b>6 OTHER BUSINESS</b> <ul style="list-style-type: none"><li>• N/A</li></ul>	


Adjourned: 10:04 AM

**TBPOC MEETING MINUTES**  
July 13, 2010, 9:00 AM – 10:00 PM

**APPROVED BY:**

  
**STEVE HEMINGER**, TBPOC Chair  
Executive Director, Bay Area Toll Authority

9/2/10  
Date

  
**BIMLA G. RHINEHART**, TBPOC Vice-Chair  
Executive Director, California Transportation Commission

9/2/10  
Date

  
**CINDY McKIM**  
Director, California Department of Transportation

9/2/2010  
Date

## *Memorandum*

**TO:** Toll Bridge Oversight Committee (TBPOC)    **DATE:** September 27, 2010

**FR:** Tony Anziano, Toll Bridge Program Manager, Caltrans

**RE:** Agenda No. - 5a2  
Item San Francisco-Oakland Bay Bridge Project Updates  
SAS Contract - LED Light Fixture Procurement

---

**Recommendation:**

**APPROVAL**

**Cost:**

CCO No. 167: Not to Exceed \$1,200,000.00

**Schedule Impacts:**

None

**Discussion:**

Lighting for the new east span of the SFOBB is conveyed by approximately 1,180 light fixtures on the OTD, Skyway, SAS and YBITS structures with approximately 760 fixtures mounted on 253 light poles throughout the structures and the remaining 420 fixtures mounted on the cable, tower and bridge deck of the SAS structure. The original scope of work provided for metal halide light fixtures throughout.

In accordance with the Mechanical, Electrical & Piping (MEP) Integration Strategy memo which was approved by the TBPOC at the November 2008 meeting, BATA has recently awarded a contract to procure the steel light poles for the entire east span. The procurement of the light fixtures for these poles was eliminated from that contract by addendum to allow for the fixtures to be changed from metal halide lights to LED lights.

The elimination of the light fixtures from the BATA contract was approved by the TBPOC at the July 2010 meeting along with a funding transfer of \$3,500,000 from the BATA contract to the SAS contract to procure these fixtures. This funding addressed the 760 light fixtures mounted on light poles but not the 420 fixtures mounted on the SAS cable, tower and bridge deck. Change Order No. 167 will provide for these 420 fixtures to be changed from metal halide lighting to LED at a cost not to exceed \$1,200,000. This change will maintain the architectural consistency of the structure and be consistent with current Caltrans policy to move towards the lower energy consumption LED light.

Two LED light fixture suppliers have performed field demonstrations to date with one additional supplier scheduled for a third demonstration. Based on the result of these demonstrations and Department input, the contractor shall select one supplier to fabricate the 420 fixtures.

A chronology of the light poles and fixtures for the east span corridor is listed below:

**Chronology of SFOBB East Span Light Poles and Light Fixtures:**

- |            |  |
|------------|--|
| 2006       | Skyway Structure – Fabrication and installation of light poles eliminated from the contract due to constructability issues.  |
|            | Oakland Touchdown 1 – Fabrication and installation of Light poles and lighting fixtures eliminated from the contract prior to bid.   |
| 2007       | Yerba Buena Island Transition Structure 1 - Fabrication of Light poles and lighting fixtures eliminated from the contract prior to bid.  |
|            | Self-Anchored Suspension Structure - Fabrication of light poles and lighting fixtures eliminated from the contract by letter. Change Order No. 43 pending.   |
| Nov. 2008  | Light poles and pole mounted lighting fixtures for entire east span approved to be furnished by BATA procurement contract.   |
| June 2009  | Oakland Touchdown 1 – Prototype of light poles built and installed with metal halide fixtures and fixture lowering devices.  |
| July 2010  | Pole mounted light fixtures for entire east span eliminated from BATA procurement contract by addendum. Fixture lowering devices eliminated. Fixtures approved to be changed from metal halide to LED lights. Pole mounted LED lights to be furnished by SAS contract. (TBPOC Memo attached) |
| Sept. 2010 | BATA contract awarded to procure light poles for entire east span.   |

## *Memorandum*

Oct. 2010      Request for SAS cable, tower and deck mounted light fixtures to be changed from metal halide to LED lights.

**Attachment(s):**

1. TBPOC July 8, 2010 Memo for Pole Mounted Light Fixtures
2. Light Fixture Detailed Plan Sheets



## *Memorandum*

**TO:** Toll Bridge Oversight Committee (TBPOC)    **DATE:** July 8, 2010

**FR:** Tony Anziano, Toll Bridge Program Manager, Caltrans

**RE:** Agenda No. - 4d1  
Item                      Mechanical, Electrical & Piping (MEP) - Bridge Lighting  
Assembly Procurement Contract Addendum No. 1

---

**Recommendation:**  
**APPROVAL**

**Cost:**  
None

**Schedule Impacts:**  
None

**Discussion:**

In accordance with the Mechanical, Electrical & Piping (MEP) Integration Strategy memo which was approved by the TBPOC at the November 2008 meeting, BATA is currently advertising a contract to procure the bridge light assemblies (poles & fixtures) for the new SFOBB east span. It is proposed an addendum be issued with 5 items, 4 of which provide minor clarifications to the contract with the 5<sup>th</sup> item providing for the elimination of the procurement of the light fixtures from that contract.

The light fixtures would be eliminated in order to change the current metal halide light to a LED light. This change would be consistent with current Caltrans policies to move towards the lower energy consuming LED light. The change would also improve the quality of the bridge lighting which requires directional lights spanning across the 5 lanes of traffic from the center of the bridge.

The BATA procurement contract is scheduled for an August 2010 bid opening. It is anticipated that the procurement of the LED fixtures would be performed under the SAS contract. The estimated procurement cost of \$3,500,000 would be transferred from the funding previously approved for the BATA procurement contract to the SAS contract with no net cost impact. Cost savings from the previously eliminated fixture lowering system are anticipated to offset any increased cost of the LED fixtures.

## *Memorandum*

**Attachment(s):**

SFOBB MEP Integration Strategy Spreadsheet

# SFOBB MEP Integration Strategy (CONFIDENTIAL)

7/13/2010

	Segregation of Work	Approximate Costs	Revised Cost	Comments
<b>A</b>	<b>Furnish Light Poles &amp; Fixtures (BATA Contract)</b>			
ITEM 1A	Furnish Light Poles & Fixtures (estimate is done by Caltrans Design)	\$15,300,000.00	\$11,800,000.00	Estimated cost savings of \$3,500,000 is anticipated due to elimination of the lowering device, all lighting fixtures and electrical components. LED light fixtures and all of electrical components will be added to item 1B below as part of installation CCO.
ITEM 2A	Storage Cost	\$1,500,000.00	\$1,500,000.00	No Change
	Contingency (Included in the above)			
	<b>Total Estimated Cost To Furnish Light Poles &amp; Fixtures (BATA Contract)</b>	<b>\$16,800,000.00</b>	<b>\$13,300,000.00</b>	Reduced by \$3.5M
<b>B</b>	<b>MEP Integration Work Installation (Proposed CCO to SAS)</b>			
ITEM 1B	Install Light Poles (Skyway and OTD1)	\$2,000,000.00	\$5,500,000.00	Estimated cost increase of \$3,500,000 is added to this item for procurment and instaletion of light fixtures (LED fixtures) and all of the electrical components, which is being eliminated from BATA contact above.
ITEM 2B	Installation of MEP items eliminated from Skyway & OTD1	\$8,000,000.00	\$8,000,000.00	No Change
ITEM 3B	Upgrades & Revisions of the already installed components (Skyway & OTD1)	\$2,500,000.00	\$2,500,000.00	No Change
ITEM 4B	Installation of BASE System (conduits & Cabinets within Skyway & OTD1)	\$2,000,000.00	\$2,000,000.00	No Change
ITEM 5B	Contingency	\$2,900,000.00	\$2,900,000.00	No Change (contingency for revised cost on item 1B was included in that item)
	<b>Total Estimated Cost For Installation</b>	<b>\$17,400,000.00</b>	<b>\$20,900,000.00</b>	No Change
<b>Total for Light Poles &amp; MEP Integration Work (within Skyway &amp; OTD1)</b>		<b>\$34,200,000.00</b>	<b>\$34,200,000.00</b>	No Change
<b>C</b>	<b>System Wide Testing (Entire Corridor) (Proposed future CCO to SAS)</b>			
ITEM 1C	System wide (Entire Corridor) testing, Relay Setting, SCADA development & commissioning	\$3,000,000.00		No Change
ITEM 2C	Resolution of system wide testing issues (for entire corridor)	\$1,500,000.00		No Change
ITEM 3C	Contingency (20%)	\$900,000.00		No Change
	<b>Total Estimated Cost Of System wide Testing</b>	<b>\$5,400,000.00</b>		No Change
<b>D</b>	<b>Complete BASE System (Entire Corridor)</b>			
ITEM 1D	Hardware (about 150 cameras, interface box and decoder for each camera / wiring)	\$3,000,000.00		No Change
ITEM 2D	Installation cost (Camera & Hardware)	\$1,500,000.00		No Change
ITEM 3D	New dedicated fiber line in both structures with 2 loops (installed)	\$2,000,000.00		No Change
ITEM 4D	Contingency (20%)	\$1,300,000.00		No Change
	<b>Total Estimated Cost for BASE System</b>	<b>\$7,800,000.00</b>		No Change
<b>Total Additional Funds Needed</b>		<b>\$13,200,000.00</b>		No Change







STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

DESIGN OVERSIGHT

BEHZAD GOLEMOHAMMADI

CALCULATED/DESIGNED BY

FW

CHECKED BY

PF

DATE

11/01

REVISED BY

DATE

11/01

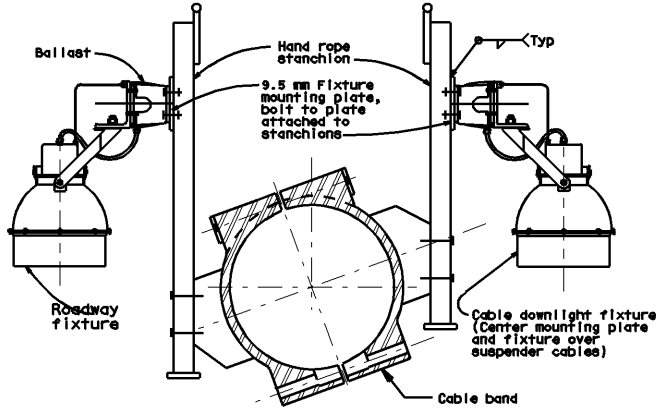
REVIS

DATE

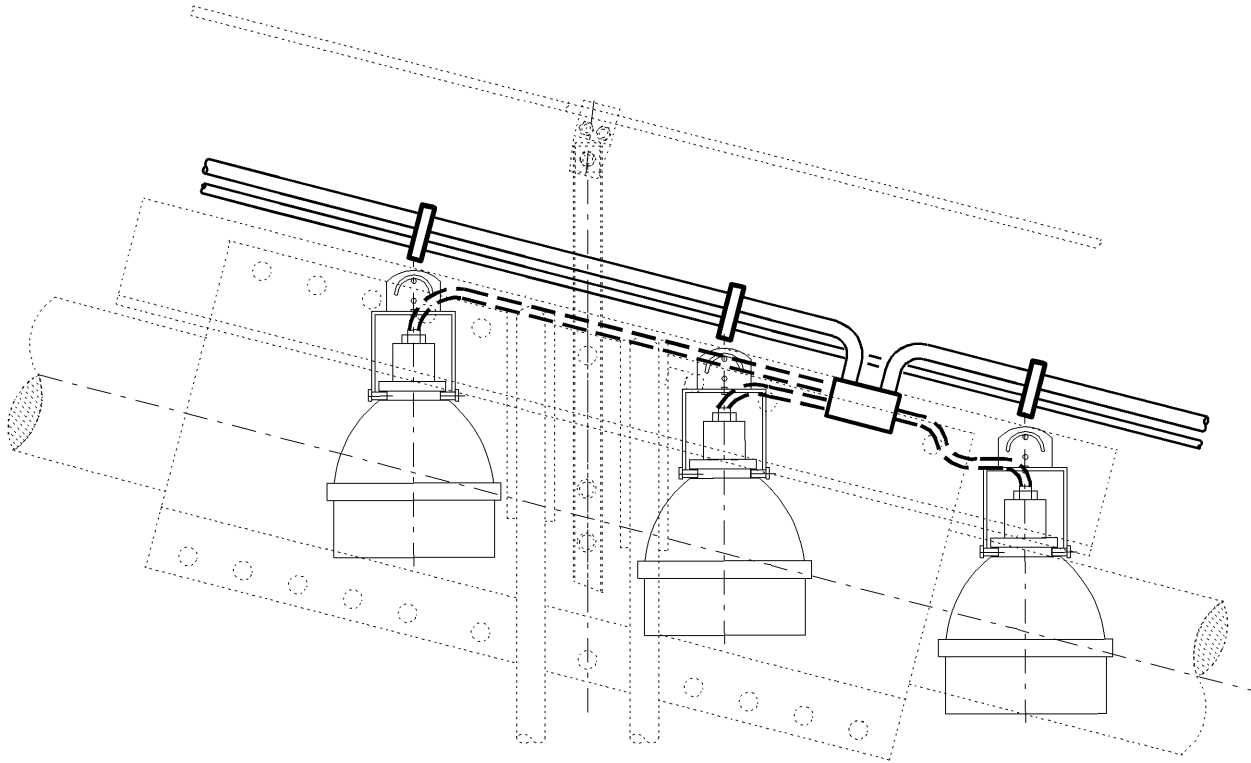
11/01



DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SF	80	13.2/13.9			
REGISTERED ELECTRICAL ENGINEER DATE						
PLANS APPROVAL DATE						
<div>REGISTERED PROFESSIONAL ENGINEER No.  Exp.  ELECTRICAL STATE OF CALIFORNIA</div>						
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.						
Caltrans now has a web site! To get to the web site, go to <a href="http://www.dot.ca.gov">http://www.dot.ca.gov</a>						



CABLE CLAMP SECTION



ELEVATION

CABLE ROADWAY LIGHTS  
(Qty = 138)

MSR & MAD SERIES





# TOLL BRIDGE PROGRAM OVERSIGHT COMMITTEE

CALTRANS BAY AREA TOLL AUTHORITY CALIFORNIA TRANSPORTATION COMMISSION

## MEETING MINUTES

October 7, 2010, 10:00am – 1:00pm

Caltrans Headquarters, DCR, 1120 N St., Sacramento, CA

TBPOC – PMT pre-briefing, 10:00am – 11:00am

TBPOC meeting, 11:00am – 1:00pm

**Attendees:** TBPOC Members: Steve Heminger, Bimla Rhinehart, and Cindy McKim  
PMT Members: Tony Anziano, Andrew Fremier, and Stephen Maller  
Participants: Michele DiFrancia, Don Fogle, Rich Foley, Asif Haq, Steven Hulsebus, Beatriz Lacson, Peter Lee, Brian Maroney, Bart Ney, Dina Noel, Ken Terpstra, and Jon Tapping  
Part-time: Sajid Abbas (TYL/M&N), Craig Chatelain (AECOM), Eric Cordoba (SFCTA), Rich Hillis (SF Mayor's Ofc), Michael Tymoff (SF Mayor's Ofc) and Al Ely (M&N)

Convened: 10:50 AM

Items		Action
1.	<b>CHAIR'S REPORT</b> <ul style="list-style-type: none"><li>S. Heminger, the Chair, indicated that he, A. Fremier and some BATA commissioners will be traveling to China in two weeks to check on the East End fabrication and to market bonds.</li></ul>	
2.	<b>TBPOC/ABF/ TYLMN Discussion</b> <ul style="list-style-type: none"><li>a. Self-Anchored Suspension (SAS) Superstructure Mitigation and Acceleration Update<ul style="list-style-type: none"><li>T. Anziano gave an update on the deck panel fabrication, segments 13 and 14 work, tower grillage and welding. Work is continuing at an accelerated pace and going very well.</li><li>The next shipment of OBG 9 and Tower Lift 2 is expected to arrive on October 9.</li><li>Tower lift 2 erection is scheduled for the third week of October, which will be another media event and visible to traffic.</li></ul></li></ul>	



(continued)

Items	Action
<p><b>3. CONSENT CALENDAR</b></p> <p>a. TBPOC Meeting Minutes</p> <ol style="list-style-type: none"> <li>1) August 27, 2010 Conference Call Minutes</li> <li>2) September 2, 2010 Meeting Minutes</li> </ol> <p>b. Contract Change Orders (CCOs)</p> <ol style="list-style-type: none"> <li>1) Yerba Buena Island Transition Structures No. 1 CCO 21-S1, Compensation for New National Pollution Discharge Elimination System (NPDES) for the Storm Water Protection and Prevention Plan (SWPPP) Permit - \$2,550,060</li> </ol>	<ul style="list-style-type: none"> <li>• The TBPOC <b>APPROVED</b> the Consent Calendar, as presented.</li> </ul>
<p><b>4. PROGRESS REPORTS</b></p> <p>a. Draft Project Progress and Financial Update September 2010</p> <ul style="list-style-type: none"> <li>• P. Lee reported that the final Project Progress and Financial Update September 2010, which the PMT approved through TBPOC-delegated authority, will go out in the BATA packet today without current expenditure data due to Caltrans' transition to a new accounting system.</li> </ul>	<ul style="list-style-type: none"> <li>• The TBPOC confirmed <b>APPROVAL</b> of the Project Progress and Financial Update September 2010 by the PMT through TBPOC-delegated authority.</li> </ul>
<p><b>5. SAN FRANCISCO-OAKLAND BAY BRIDGE (SFOBB) UPDATES</b></p> <p>a. SAS Update</p> <ol style="list-style-type: none"> <li>1) Light Poles <ul style="list-style-type: none"> <li>• P. Lee provided an update on the procurement and fabrication of the light poles for the entire East Span of the SFOBB including the SAS.</li> <li>○ BATA awarded the purchase order and notice to proceed to the low bidder Valmont Industries, Inc. The Department agrees with the award.</li> </ul> </li> <li>2) CCO 167 (LED Light Fixtures) <ul style="list-style-type: none"> <li>• T. Anziano presented, for TBPOC approval, CCO 167 which changes</li> </ul> </li> </ol>	<ul style="list-style-type: none"> <li>• The TBPOC <b>APPROVED</b> CCO 167 for an amount not to</li> </ul>

**(continued)**

Items	Action
<p>the SAS cable, tower and deck-mounted light fixtures from metal halide to LED lights, for an amount not to exceed \$1,200,000.</p> <ul style="list-style-type: none"> <li>• The SAS contractor will select a supplier to fabricate the fixtures based on field demonstrations of three suppliers and Department input.</li> </ul>	<p>exceed \$1,200,000, as presented.</p>
<p>b. Yerba Buena Island (YBI) Detour</p> <p>1) Update</p> <ul style="list-style-type: none"> <li>• T. Anziano reported that the job is basically complete.</li> </ul>	
<p>c. Yerba Buena Island Transition Structures (YBITS) No. 1</p> <p>1) City of San Francisco Update/YBITS1 Structural CCO</p> <ul style="list-style-type: none"> <li>• T. Anziano introduced the City of San Francisco team and described additional CCO work that would change aesthetics, the cost for which is within the amount set forth in the Cooperative Agreement 4-2283 executed in March 2010, but would revise the schedule for it.</li> <li>• E. Cordoba, Project Manager, San Francisco County Transportation Authority (SFCTA), distributed a handout, for TBPOC information, on "I-80/Yerba Buena Island Westbound Ramps Project, Presentation to the TBPOC, Structural CCO for Ramp Connections", and summarized its contents and work schedule.</li> <li>○ The CCO is consistent with the Cooperative Agreement, and all CCO costs will be borne by the San Francisco County Transportation Authority.</li> <li>• In the interest of time, E.</li> </ul>	<ul style="list-style-type: none"> <li>• Although presented as an</li> </ul>

(continued)

Items	Action
<p>Cordoba requested TBPOC approval to pass work-related documents to the contractor in order to identify cost, obtain pricing, and begin processing a CCO.</p> <ul style="list-style-type: none"> <li>○ T. Anziano indicated that the PMT supports the City and County of San Francisco in this effort, but to maintain distinction between the City's project and ours, a separate environmental report would be required.</li> </ul> <p>d. Oakland Touchdown (OTD) No. 2</p> <p>1) Revised Detour and Staging Concept Update</p> <ul style="list-style-type: none"> <li>• B. Maroney described the two alternative alignments currently being considered for the detour: Alignment #9 which avoids the billboards and cell phone towers on the OTD site; and Alignment #7 which requires full, permanent acquisition of 2 billboards and 2 cell phone towers. He presented the advantages of moving forward quickly, efficiently and safely with Alignment #9 as opposed to the merits of Alignment #7 presented by S. Maller.</li> <li>○ S. Hulsebus noted that the design exceptions are the same for both alignments. Bicycle/ pedestrian access to the bridge at time of opening varies by alignment.</li> <li>○ Discussion included a comparison between Alignment #9 and #7 as to cost, schedule, risk; billboard acquisition constraints; and impact of bike/pedestrian access</li> <li>• The following authorizations were requested with respect to</li> </ul>	<p>informational item, the TBPOC <b>APPROVED</b> the City's request to issue documents to the contractor and begin processing a CCO, conditional on an approved environmental document for the project, an agreement that the City of San Francisco will pay to restore the structure to its original condition if the ramps are not built, and revising the Cooperative Agreement to reflect the additional CCO work.</p>

(continued)

Items	Action
<p>this work.</p> <ol style="list-style-type: none"><li>1) Approval to advance the Temporary Oakland Touchdown Detour on Alignment #9.</li><li>2) Approval to advance the Temporary Oakland Touchdown eastbound roadway and necessary associated work by contract change order (CCO) to MCM Construction. (This is not approval for the CCO, but just to advance the work in preparation for the CCO that would then be expected to be reviewed and approved.)</li><li>3) Approval to advance the Oakland Touchdown permanent bridge work and associated work as part of the Oakland Touchdown 2 (OTD2) Plans, Specifications, and Estimate (PS&amp;E) package that is being scheduled for competitive bidding.</li><li>4) Approval to advance the Temporary Oakland Touchdown Detour westbound bridge widening, roadway, and necessary associated work by using an expedited process (short list bidding under a Director's order or CCO).</li><li>5) Approval to advance the Oakland Touchdown work in accordance with the schedule labeled Alt 9 OTD EB Detour CCO &amp; WB CCO, or alternatively, Alt 9 OTD EB Detour CCO &amp; WB Short List Option.</li><li>6) Approval to contract out parts</li></ol>	<ul style="list-style-type: none"><li>• The TBPOC deferred Item 1, and <b>APPROVED</b> Items 2, 3, 4 (via CCO) and 6, as presented, and item 5 with revision (replace "or alternatively, Alt. 9" with "regardless of alignment").</li><li>• The TBPOC requested additional information related to bicycle access and safety for both alignments.</li><li>• The PMT to present the recommended alignment to the TBPOC at a conference call in one week or three weeks, as discussed.</li></ul>



(continued)


Items	Action
<p>of the design of the Temporary Oakland Touchdown Detour PS&amp;E to T. Y. Lin and Parsons Brinkerhoff.</p> <ul style="list-style-type: none"><li>○ The TBPOC indicated that they do not have sufficient information to decide on Item 1 (preferred alignment) and directed the team to further analyze the pros and cons of each alignment and present a more comprehensive evaluation of both options for PMT analysis and recommendation to the TBPOC as soon as possible.</li></ul> <p>2) OTD2 Bicycle Access Options</p> <ul style="list-style-type: none"><li>• See item 5d1 above.</li></ul>	
<p><b>6 ANTIOCH/ DUMBARTON BRIDGE SEISMIC RETROFIT UPDATES</b></p> <ul style="list-style-type: none"><li>• P. Lee provided updates, for TBPOC information, on the Antioch and Dumbarton Bridge Seismic Retrofit projects.<ul style="list-style-type: none"><li>○ <u>Antioch Bridge</u>: Progress in field work is ongoing. A fabrication welding issue was described which may result in a CCO.</li><li>○ <u>Dumbarton Bridge</u>: Field work is scheduled to start mid-October 2010.</li></ul></li></ul>	
<p><b>7 OTHER BUSINESS</b></p> <ul style="list-style-type: none"><li>• The next TBPOC meeting is a conference call in the next week or three weeks, prior to the November 9, 2010 meeting in Oakland.</li></ul>	

Adjourned: 12:05 PM

(continued)

**TBPOC MEETING MINUTES**  
October 7, 2010, 10:00am – 1:00pm

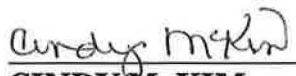
**APPROVED BY:**

  
\_\_\_\_\_  
**STEVE HEMINGER**, TBPOC Chair  
Executive Director, Bay Area Toll Authority

11/9/10  
Date

  
\_\_\_\_\_  
**BIMLA G. RHINEHART**, TBPOC Vice-Chair  
Executive Director, California Transportation Commission

11/9/10  
Date

  
\_\_\_\_\_  
**CINDY McKIM**  
Director, California Department of Transportation

11/9/2010  
Date

## *Memorandum*

**TO:** Toll Bridge Program Oversight Committee  
(TBPOC)

**DATE:** January 26, 2011

**FR:** Jon Tapping, Toll Bridge Program Risk Management Coordinator, Caltrans

**RE:** Agenda No. – 4a

Item – Progress Reports

TBSRP 4<sup>th</sup> Quarter 2010 Risk Management Update

---

**Action:**

For Information Only

**Cost:**

N/A

**Schedule Impacts:**

N/A

**Discussion:**

The Toll Bridge Program Risk Management Coordinator will present an overview of the 4<sup>th</sup> Quarter 2010 risk management results.

**Attachment:**

N/A

## *Memorandum*

**TO:** Toll Bridge Program Oversight Committee (TBPOC)      **DATE:** January 26, 2011

**FR:** Andrew Fremier, Deputy Director, BATA

**RE:** Agenda No. - 4b  
Progress Reports  
Item- Draft 2010 Fourth Quarter Project Progress and Financial Update

---

**Recommendation:**  
**APPROVAL**

**Cost:**  
N/A

**Schedule Impacts:**  
N/A

**Discussion:**  
Included in this package, for TBPOC approval, is a draft 2010 Fourth Quarter Project Progress and Financial Update. The final report is scheduled for distribution on February 4, 2011.

**Attachment(s):**  
Draft 2010 Fourth Quarter Project Progress and Financial Update (see end of binder)



# San Francisco Bay Area Toll Bridge Seismic Retrofit and Regional Measure 1 Programs

**DRAFT VERSION 4.0**

**2010 Fourth Quarter  
Project Progress and  
Financial Update**

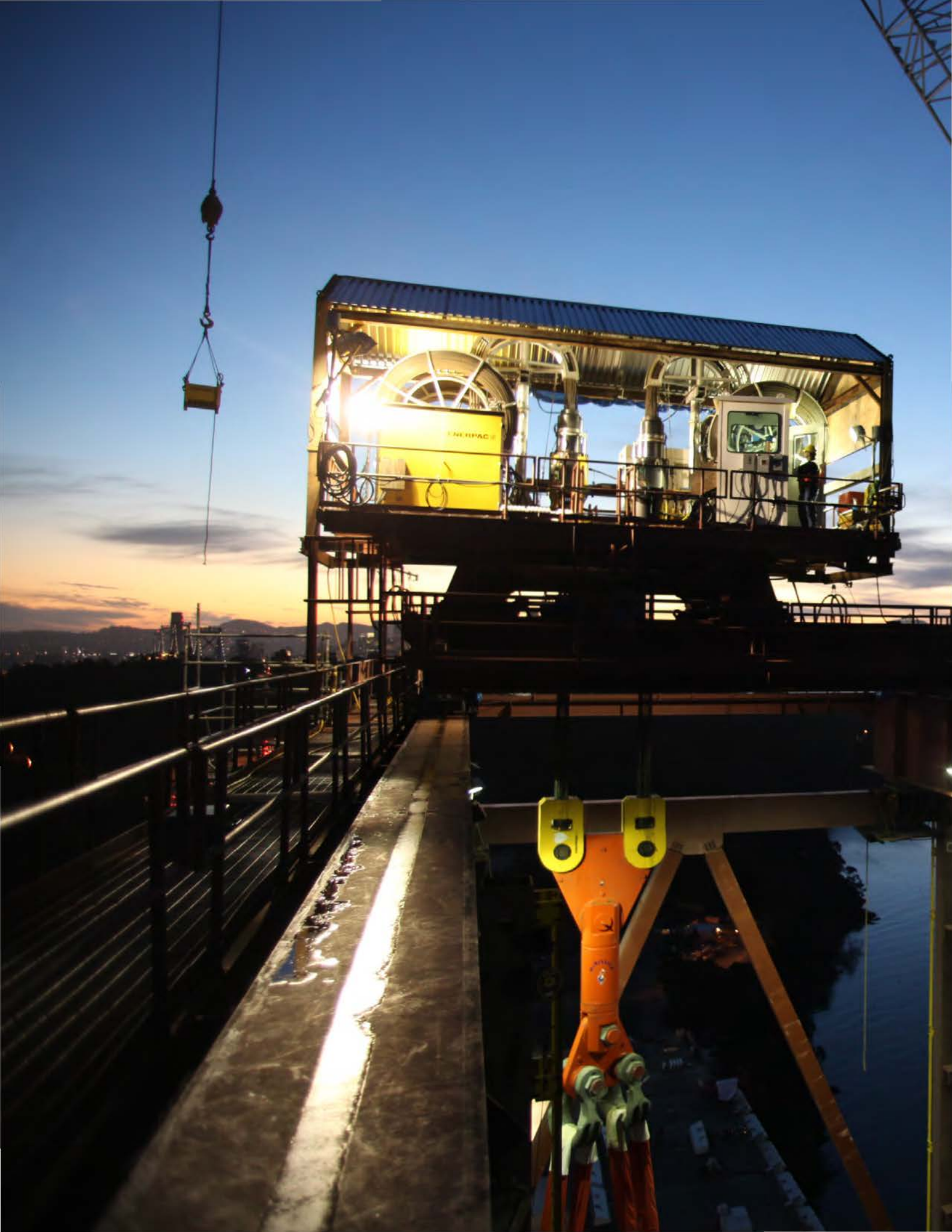


**TOLL BRIDGE PROGRAM  
OVERSIGHT COMMITTEE**

CALTRANS BAY AREA TOLL AUTHORITY CALIFORNIA TRANSPORTATION COMMISSION

**Released: February 2011**









Jack Strand housing atop Tower Lift Frame at Dusk



Toll Bridge Program Oversight Committee  
Department of Transportation  
Office of the Director  
1120 N Street  
P.O. Box 942873  
Sacramento, CA 94273-0001

February 03, 2010

Mr. Gregory Schmidt  
Secretary of the Senate  
State Capitol, Room 3044  
Sacramento, CA 95814

Mr. E. Dotson Wilson  
Chief Clerk of the Assembly  
State Capitol, Room 3196  
Sacramento, CA 95814

Dear Messrs. Schmidt and Wilson:

The Toll Bridge Program Oversight Committee (TBPOC) is pleased to submit the 2010 Fourth Quarter Toll Bridge Seismic Retrofit Program Report, prepared pursuant to California Streets and Highways Code Section 30952.

The TBPOC is tasked to perform project oversight and control over the Toll Bridge Seismic Retrofit Program (TBSRP) and is comprised of the Director of the Department of Transportation (Caltrans), the Executive Director of the Bay Area Toll Authority (BATA), and the Executive Director of the California Transportation Commission (CTC). This fourth quarter report includes project progress and activities for the Toll Bridge Seismic Retrofit Program through December 31, 2010.

Significant progress continues to be made on the San Francisco-Oakland Bay Bridge East Span Replacement Project, including the arrival in December 2010 and installation in January 2011 of the 19th and 20th steel roadway boxes and the third lift of steel tower boxes for the Self-Anchored Suspension Span (SAS). Our next shipment is scheduled to arrive in February 2011. While each installed segment represents a major step forward, we continue to be mindful of the challenges that remain and of our goal to open the new bridge to traffic as soon as possible.

Towards those ends, we have put in place incentives and disincentives to accelerate the completion of the bridge, including an allowance for a "seismic safety opening" of the bridge to traffic as soon as possible before non-essential systems like architectural lighting or removal of unneeded temporary support structures are completed. With this allowance, we will maintain our goal of getting traffic onto the new bridge by the end of 2013. Furthermore, we are implementing an acceleration option to complete the eastbound Oakland touchdown structure that currently is in conflict with the existing bridge.



This option will require temporary lane realignments and widening of the eastern end of the existing bridge in Oakland and will allow for both eastbound and westbound directions of the new bridge to open to traffic when the self-anchored suspension bridge is ready. Excellent progress continues to be made on our other seismic retrofit work, including construction of the new Yerba Buena Island Transition Structures (YBITS) and on the retrofits of the Antioch and Dumbarton bridges.

As of the end of the fourth quarter of 2010, the 50 percent probable draw on the remaining \$415 million program contingency is \$144 million. The potential draw ranges from about \$20 million to \$280 million. The current program contingency balance is sufficient to cover the cost of currently identified risks. Risk mitigation actions are continuously developed and implemented to reduce the potential draw on the program contingency.

The TBPOC is committed to providing the Legislature with comprehensive and timely reporting on the TBSRP. If there are any questions, or if any additional information is required, please do not hesitate to contact the members of the TBPOC.

Sincerely,

STEVE HEMINGER  
TBPOC Chair  
Executive Director  
Bay Area Toll Authority

BIMLA G. RHINEHART  
TBPOC Vice-Chair  
Executive Director  
California Transportation  
Commission

CINDY McKIM  
Director  
California Department of Transportation



Toll Bridge Program Oversight Committee  
Department of Transportation  
Office of the Director  
1120 N Street  
P.O. Box 942873  
Sacramento, CA 94273-0001

February 03, 2011

Mr. James Earp, Chair  
California Transportation Commission  
1120 N Street, Room 2221  
Sacramento, CA 95814

Mr. Dario Frommer, Vice-Chair  
California Transportation Commission  
1120 N Street, Room 2221  
Sacramento, CA 95814

The Toll Bridge Program Oversight Committee (TBPOC) is pleased to submit the 2010 Fourth Quarter Toll Bridge Seismic Retrofit Program Report, prepared pursuant to California Streets and Highways Code Section 30952.

The TBPOC is tasked to perform project oversight and control over the Toll Bridge Seismic Retrofit Program (TBSRP) and is comprised of the Director of the Department of Transportation (Caltrans), the Executive Director of the Bay Area Toll Authority (BATA), and the Executive Director of the California Transportation Commission (CTC). This fourth quarter report includes project progress and activities for the Toll Bridge Seismic Retrofit Program through December 31, 2010.

Significant progress continues to be made on the San Francisco-Oakland Bay Bridge East Span Replacement Project, including the arrival in December 2010 and installation in January 2011 of the 19th and 20th steel roadway boxes and the third lift of steel tower boxes for the Self-Anchored Suspension Span (SAS). Our next shipment is scheduled to arrive in February 2011. While each installed segment represents a major step forward, we continue to be mindful of the challenges that remain and of our goal to open the new bridge to traffic as soon as possible.

Towards those ends, we have put in place incentives and disincentives to accelerate the completion of the bridge, including an allowance for a "seismic safety opening" of the bridge to traffic as soon as possible before non-essential systems like architectural lighting or removal of unneeded temporary support structures are completed. With this allowance, we will maintain our goal of getting traffic onto the new bridge by the end of 2013. Furthermore, we are implementing an acceleration option to complete the eastbound Oakland touchdown structure that currently is in conflict with the existing bridge.

---

This option will require temporary lane realignments and widening of the eastern end of the existing bridge in Oakland and will allow for both eastbound and westbound directions of the new bridge to open to traffic when the self-anchored suspension bridge is ready. Excellent progress continues to be made on our other seismic retrofit work, including construction of the new Yerba Buena Island Transition Structures (YBITS) and on the retrofits of the Antioch and Dumbarton bridges.

As of the end of the fourth quarter of 2010, the 50 percent probable draw on the remaining \$415 million program contingency is \$144 million. The potential draw ranges from about \$20 million to \$280 million. The current program contingency balance is sufficient to cover the cost of currently identified risks. Risk mitigation actions are continuously developed and implemented to reduce the potential draw on the program contingency.

The TBPOC is committed to providing the Legislature with comprehensive and timely reporting on the TBSRP. If there are any questions, or if any additional information is required, please do not hesitate to contact the members of the TBPOC.

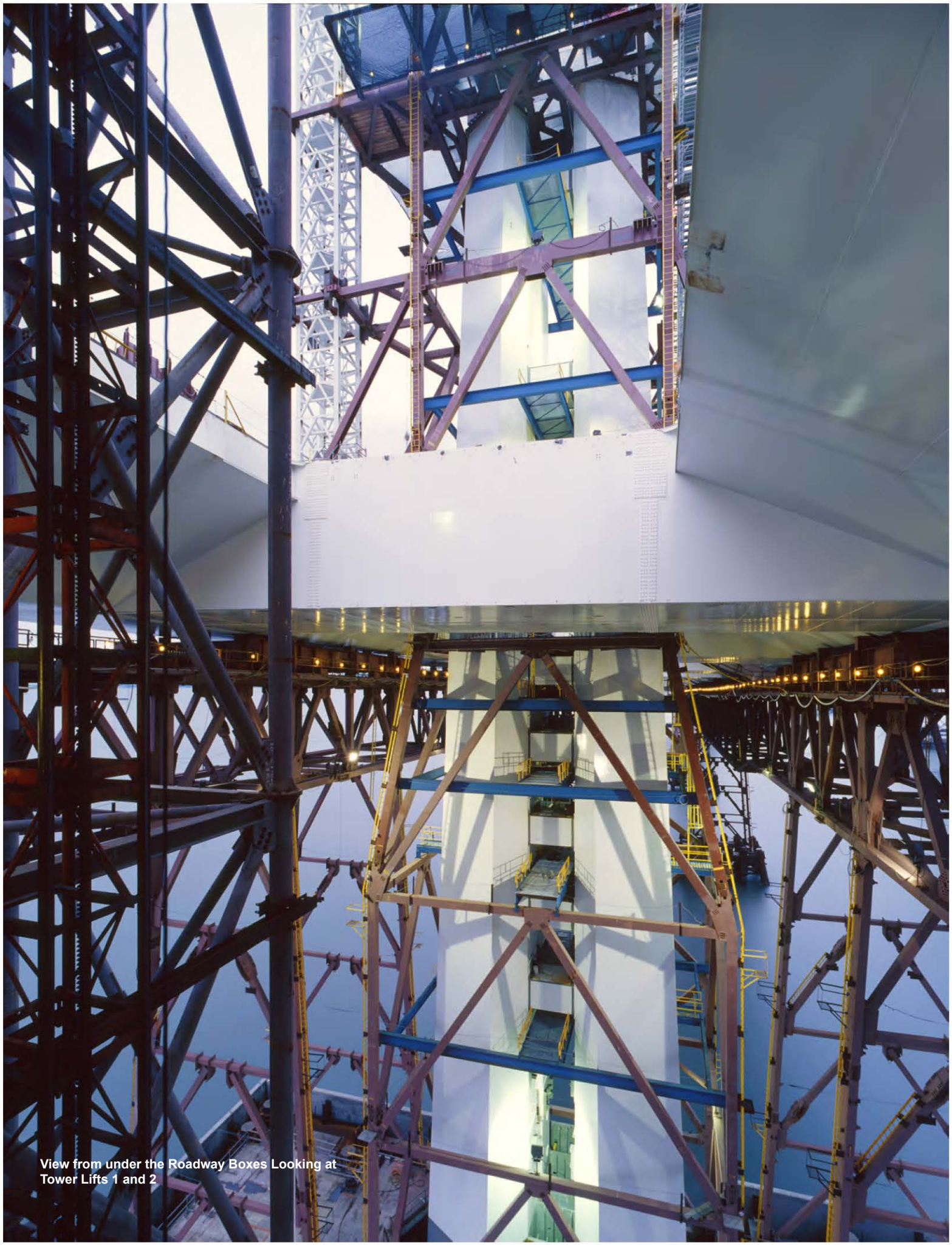
Sincerely,

STEVE HEMINGER  
TBPOC Chair  
Executive Director  
Bay Area Toll Authority

BIMLA G. RHINEHART  
TBPOC Vice-Chair  
Executive Director  
California Transportation  
Commission

CINDY McKIM  
Director  
California Department of Transportation





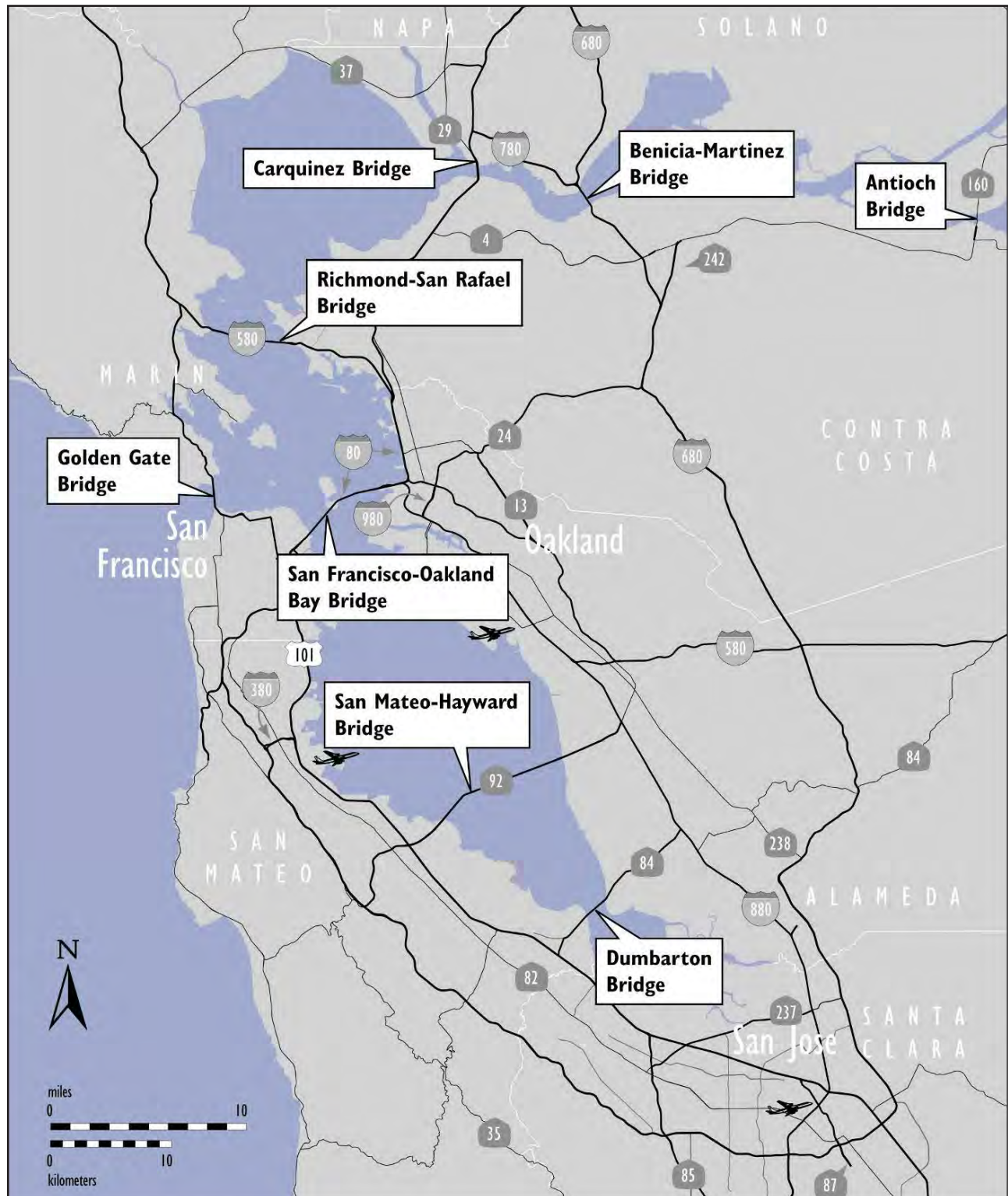
View from under the Roadway Boxes Looking at  
Tower Lifts 1 and 2



## Table of Contents

<b>Introduction</b>	<b>1</b>
Summary Of Major Project Highlights, Issues, And Actions	2
Toll Bridge Seismic Retrofit Program Cost Summary	6
Toll Bridge Seismic Retrofit Program Schedule Summary	7
Regional Measure 1 Program Cost Summary	8
Regional Measure 1 Program Schedule Summary	9
<b>Toll Bridge Seismic Retrofit Program (TBSRP)</b>	<b>11</b>
San Francisco-Oakland Bay Bridge Seismic Retrofit Strategy	12
San Francisco-Oakland Bay Bridge East Span Replacement Project Summary	15
Yerba Buena Island Transitions Structures	16
Self-Anchored Suspension (SAS) Bridge	18
SAS Construction Sequence	20
SAS Superstructure Fabrication Activities	22
SAS Superstructure Field Activities	25
SAS Superstructure Roadway and Tower Box Installation Activities	26
Skyway	28
Oakland Touchdown (OTD)	29
Other Contracts	30
Quarterly Environmental Compliance Highlights	32
Antioch Bridge Seismic Retrofit Project	34
Dumbarton Bridge Seismic Retrofit Project	36
<b>Other Completed TBSRP Projects</b>	<b>38</b>
Risk Management Program Update	40
Program Funding Status	44
<b>Regional Measure 1 Toll Bridge Program</b>	<b>48</b>
Interstate 880/State Route 92 Interchange Reconstruction Project	48
Other Completed RM1 Projects	50
<b>Appendices</b>	<b>53</b>

## Map of Bay Area Toll Bridges



\* The Golden Gate Bridge is owned and operated by the Golden Gate Bridge, Highway, and Transportation District.

## Introduction

In July 2005, Assembly Bill (AB) 144 (Hancock) created the Toll Bridge Program Oversight Committee (TBPOC) to implement a project oversight and project control process for the new Benicia-Martinez Bridge and State Toll Bridge Seismic Retrofit Program projects. The TBPOC consists of the Director of Caltrans, the Executive Director of the Bay Area Toll Authority (BATA) and the Executive Director of the California Transportation Commission (CTC). The TBPOC's project oversight and control processes include, but are not limited to, reviewing bid specifications and documents, reviewing and approving significant change orders and claims in excess of \$1 million (as defined by the Committee), and keeping the Legislature and others of current project progress and status. In January 2010, Assembly Bill (AB) 1175 (Torlakson) amended the TBSRP to include the Antioch and Dumbarton Bridges seismic retrofit projects. The current Toll Bridge Seismic Retrofit Program is as follows:

Toll Bridge Seismic Retrofit Projects	Seismic Safety Status
Dumbarton Bridge Seismic Retrofit	Construction
Antioch Bridge Seismic Retrofit	Construction
San Francisco-Oakland Bay Bridge East Span Replacement	Construction
San Francisco-Oakland Bay Bridge West Approach Replacement	Complete
San Francisco-Oakland Bay Bridge West Span Seismic Retrofit	Complete
San Mateo-Hayward Bridge Seismic Retrofit	Complete
Richmond-San Rafael Bridge Seismic Retrofit	Complete
1958 Carquinez Bridge Seismic Retrofit	Complete
1962 Benicia-Martinez Bridge Seismic Retrofit	Complete
San Diego-Coronado Bridge Seismic Retrofit	Complete
Vincent Thomas Bridge Seismic Retrofit	Complete

The New Benicia-Martinez Bridge is part of a larger program of toll-funded projects called the Regional Measure 1 (RM1) Toll Bridge Program under the responsibility of BATA and Caltrans. While the rest of the projects in the RM1 program are not directly under the responsibility of the TBPOC, BATA and Caltrans will continue to report on their progress as an informational item. The RM1 program includes:

Regional Measure 1 Projects	Open to Traffic Status
Interstate 880/State Route 92 Interchange Reconstruction	Construction
1962 Benicia-Martinez Bridge Reconstruction	Open
New Benicia-Martinez Bridge	Open
Richmond-San Rafael Bridge Deck Overlay Rehabilitation	Open
Richmond-San Rafael Bridge Trestle, Fender & Deck Joint Rehabilitation	Open
Westbound Carquinez Bridge Replacement	Open
San Mateo-Hayward Bridge Widening	Open
State Route 84 Bayfront Expressway Widening	Open
Richmond Parkway	Open



## SUMMARY OF MAJOR PROJECT HIGHLIGHTS, ISSUES, AND ACTIONS



Shear-Leg Barge Crane Preparing to Offload Crossbeams and Roadway Boxes 10 East and West



The Existing Bridge on right and Completed Skyway on left Looking East toward Oakland



Aerial View of Tower Lift 3 Being Erected and Installed Roadway Boxes 1 through 9

### Toll Bridge Seismic Retrofit Program Risk Management

A major element of the 2005 AB144, the law creating the TBPOC, was legislative direction to implement a more aggressive risk management program. Such a program has been implemented in stages over time to ensure development of a robust and comprehensive approach to risk management.

A comprehensive risk assessment is performed for each project in the program on a quarterly basis. Based upon those assessments, a forecast is developed using the average cost of risk. These forecasts can both increase and decrease as risks are identified, resolved or retired. Nonetheless, assurances have been made that the public is informed of the risks that have been identified and the possible expense they could necessitate.

As of the end of the fourth quarter of 2010, the 50 percent probable draw on the current \$415 million budgeted program contingency is \$144 million. The potential draw ranges from \$20 million to \$280 million. The current program contingency balance is sufficient to cover the cost of currently identified risks. Risk mitigation actions are continuously developed and implemented to reduce the potential draw on the program contingency.

### San Francisco-Oakland Bay Bridge (SFOBB) East Span Seismic Replacement Project SAS Superstructure Contract

The prime contractor constructing the Self-Anchored Suspension (SAS) Bridge from the completed Skyway to Yerba Buena Island is a joint venture of American Bridge/Fluor (ABF). Significant progress is being made both in the Bay Area and around the world.

On December 13, 2010, roadway boxes 10 east and 10 west and tower lift three shafts arrived in Oakland. As of the end of December 2010, the first 19 of 28 steel roadway boxes and first three of five lifts of tower shafts have been installed. In January 2011, two more roadway boxes and the fourth and fifth lifts of tower shafts are scheduled to be shipped.

These boxes, fabricated in Shanghai, China, join other bridge components that have been arriving from around the country and the world. All bridge components undergo a rigorous quality review by the fabricator, ABF, and Caltrans to ensure that only





San Francisco-Oakland Bay Bridge Detour Structure Completed over the Labor Day Weekend 2009

bridge components that have been built in accordance to the specifications will be shipped. The three remaining roadway boxes are scheduled to be fabricated and shipped by the end of July 2011. In September 2010, the TBPOC negotiated a change to the contract with the contractor to address past challenges, mitigate delays, and to accelerate the remaining work with a goal of opening the bridge to traffic by 2013. The change agreed to is a “seismic safety opening” of the bridge to traffic before non-essential systems, like architectural lighting or removal of unneeded temporary support structures, are completed. In October 2010, ABF presented a schedule to Caltrans that meets the incentivized bridge-opening date in the fall of 2013.

To fund the change and replenish contract contingency, the TBPOC approved an amendment to the budget for the SAS contract to be consistent with the \$2.0 billion Second Quarter 2010 forecast which resulted in an approved budget increase of \$293 million. This action did not require any change to the overall Toll Bridge Seismic Retrofit Program budget because adequate program contingency funds are available to cover this budget change for the SAS contract.

## Yerba Buena Island Detour Contract

The temporary detour structure contract was completed in October 2010.

## Yerba Buena Island Transition Structures #1 Contract

The YBITS#1 contract has been awarded to MCM Construction, the same contractor that completed the Oakland Touchdown (OTD) #1 contract. MCM mobilized in September 2010, and has had total access to the area since October 1, 2010. The MCM contract includes completing the remaining foundations and the bridge deck structure from the Yerba Buena Island Tunnel to the self-anchored suspension bridge.

MCM Construction, Inc. is currently constructing an access trestle to the remaining foundations and columns near the tunnel end of the bridge structure.



Yerba Buena Island Transition Westbound Falsework

## SUMMARY OF MAJOR PROJECT HIGHLIGHTS, ISSUES, AND ACTIONS



Oakland Touchdown Bike Path and Hand Railing



Oakland Touchdown Service Platforms Installed



Hinge K Pipe Beams on Pier W2

### Oakland Touchdown #1 Contract

The Oakland Touchdown (OTD) #1 contractor, MCM Construction completed the work on June 8, 2010. The contract constructed the westbound approach from the toll plaza to the Skyway structure and the portion of the eastbound approach that is not in conflict with the existing bridge structure.

### Oakland Touchdown Detour

With the incentives and disincentives put into place to accelerate the completion of the SAS before the end of 2013, the TBPOC is exploring similar acceleration options on the OTD #2 contract to insure a simultaneous eastbound and westbound opening of the bridge as soon as possible. Similar to an earlier TBPOC decision to advance construction off the critical path, the TBPOC is implementing an acceleration option to complete the eastbound Oakland Touchdown structure that is currently in conflict with the existing bridge. This option will require temporary lane realignments and widening of the western end of the existing bridge and will allow for both eastbound and westbound directions of the new bridge to open to traffic at the same time when the self-anchored suspension bridge is ready.

### TBSRP Capital Outlay Support

The capital outlay support (COS) budget, originally established as a part of AB 144 in 2005, was based on a schedule that assumed bridge opening in 2012. After the SAS contract was rebid, interested contractors requested an additional year to be added to the schedule. To ensure a competitive bidding pool, the TBPOC changed the approved schedule to reflect bridge opening in 2013, but delayed increasing the COS budget to cover the project extension with the belief that an accelerated early completion was still possible and that COS costs could be contained. Since that time, early completion has not materialized and the TBPOC has subsequently approved COS budget increases to be funded from the COS reserves set aside within the original program contingency for project extensions or delays. Opportunities to economize and reduce costs in this area will continue to be pursued. However, additional COS is forecast to be needed from the program contingency.





Antioch Bridge - Steel Cross Bracing Delivered to Site



Dumbarton Bridge - Concrete Removal Operation at East Approach Slab



92/880 NWCONN Bridge Construction in Progress

## TBSRP Programmatic Risks

This category includes risks that are not yet scoped within existing contracts and/or that spread across multiple contracts. The interdependencies between all of the contracts in the program result in the potential for one contract's delay to impact the entire program that are accounted for in the net programmatic risks.

## Antioch Bridge Seismic Retrofit

The Antioch Bridge serves the Delta region of the Bay Area. The current 1.8-mile-long steel plate girder bridge was opened in 1978 with one lane in each direction. The major retrofit strategy for the bridge includes installing seismic isolation bearings at each of the 41 piers, strengthening piers 12 through 31 with steel cross-bracing between column bents and installing steel casings at all columns located at the Sherman Island approach slab bridge. See Project progress on page 32.

## Dumbarton Bridge Seismic Retrofit

The current Dumbarton Bridge was opened to traffic in 1982 linking the cities of Newark in Alameda County and East Palo Alto in San Mateo County. The 1.6-mile long bridge has six lanes (three in each direction) and an eight-foot bicycle/pedestrian pathway. The bridge is a combination of reinforced concrete and steel girders that support a reinforced lightweight concrete roadway on reinforced concrete columns. The current retrofit strategy for the bridge includes superstructure and deck modifications and installation of isolation bearings. See project progress on page 34.

## Regional Measure 1 Toll Bridge Program (RM1)

### Interstate 880/State Route 92 Interchange Reconstruction Project

Work is now ongoing on the remaining northern half of the separation structure. The project is forecast to be substantially completed in September 2011, pending weather or unforeseen construction delays.

## Toll Bridge Seismic Retrofit Program Cost Summary

	Contract Status	AB 144/SB 66 Budget (July 2005)	TBPOC Approved Changes	Current TBPOC Approved Budget (December 2010)	Cost to Date (December 2010)	Current Cost Forecast (December 2010)	Cost Variance	Cost Status
		a	b	c = a + b	d	e	f = e - c	
<b>SFOBB East Span Seismic Replacement</b>								
Capital Outlay Construction								
Skyway	Completed	1,293.0	(38.9)	1,254.1	1,236.9	1,254.1	-	●
SAS Marine Foundations	Completed	313.5	(32.6)	280.9	274.8	280.9	-	●
SAS Superstructure	Construction	1,753.7	293.1	2,046.8	1,401.4	2,074.7	27.9	●
YBI Detour	Completed	131.9	360.9	492.8	466.3	488.8	(4.0)	●
YBI Transition Structures (YBITS)		299.3	(93.0)	206.3	18.1	253.1	46.8	●
YBITS 1	Construction			144.0	18.1	185.4	41.4	●
YBITS 2	Design			59.0	-	64.4	5.4	●
YBITS Landscaping	Design			3.3	-	3.3	-	●
Oakland Touchdown (OTD)		283.8	4.2	288.0	209.6	284.3	(3.7)	●
OTD 1	Completed			212.0	201.7	204.4	(7.6)	●
OTD 2	Design			62.0	-	65.9	3.9	●
OTD Electrical Systems	Design			4.4	-	4.4	-	●
Submerged Electric Cable	Completed			9.6	7.9	9.6	-	●
Existing Bridge Demolition	Design	239.2	(0.1)	239.1	-	233.0	(6.1)	●
Stormwater Treatment Measures	Completed	15.0	3.3	18.3	16.7	18.3	-	●
Other Completed Contracts	Completed	90.4	(0.1)	90.3	89.9	90.4	0.1	●
Capital Outlay Support		959.3	203.0	1,162.3	912.1	1,269.2	106.9	●
Right-of-Way and Environmental Mitigation		72.4	-	72.4	51.3	72.4	-	●
Other Budgeted Capital		35.1	(3.3)	31.8	0.7	7.7	(24.1)	●
<b>Total SFOBB East Span Replacement</b>		<b>5,486.6</b>	<b>696.5</b>	<b>6,183.1</b>	<b>4,677.8</b>	<b>6,326.9</b>	<b>143.8</b>	●
<b>Antioch Bridge Seismic Retrofit</b>								
Capital Outlay Construction and Mitigation	Construction		70.0	70.0	14.2	62.0	(8.0)	●
Capital Outlay Support			31.0	31.0	17.5	35.7	4.7	●
<b>Total Antioch Bridge Seismic Retrofit</b>		<b>-</b>	<b>101.0</b>	<b>101.0</b>	<b>31.7</b>	<b>97.7</b>	<b>(3.3)</b>	●
<b>Dumbarton Bridge Seismic Retrofit</b>								
Capital Outlay Construction and Mitigation	Construction		92.7	92.7	5.2	96.8	4.1	●
Capital Outlay Support			56.0	56.0	23.6	55.7	(0.3)	●
<b>Total Dumbarton Bridge Seismic Retrofit</b>		<b>-</b>	<b>148.7</b>	<b>148.7</b>	<b>28.8</b>	<b>152.5</b>	<b>3.8</b>	●
Other Program Projects		2,268.4	(64.6)	2,203.8	2,159.0	2,191.7	(12.1)	●
Miscellaneous Program Costs		30.0	-	30.0	25.5	30.0	-	●
Net Programmatic Risks <sup>1</sup>		-	-	-	-	11.8	11.8	●
Program Contingency		900.0	(484.6)	415.4	-	271.4	(144.0)	●
<b>Total Toll Bridge Seismic Retrofit Program <sup>2</sup></b>		<b>8,685.0</b>	<b>397.0</b>	<b>9,082.0</b>	<b>6,922.8</b>	<b>9,082.0</b>	<b>-</b>	●

● Within approved schedule and budget

● Identified potential project risks that could significantly impact approved schedules and budgets if not mitigated

● Known project impacts with forthcoming changes to approved schedules and budgets



## Toll Bridge Seismic Retrofit Program Schedule Summary

	AB144/SB 66 Project Completion Schedule Baseline (July 2005)	TBPOC Approved Changes (Months)	Current TBPOC Approved Completion Schedule (December 2010)	Current Completion Forecast (December 2010)	Schedule Variance (Months)	Schedule Status	Remarks/Notes
	g	h	i = g + h	j	k = j - i	l	
<b>SFOBB East Span Seismic Replacement</b>							
Contract Completion							
Skyway	Apr 2007	8	Dec 2007	Dec 2007	-	●	See Page 28
SAS Marine Foundations	Jun 2008	(5)	Jan 2008	Jan 2008	-	●	See Page 18
SAS Superstructure	Mar 2012	29	Aug 2014	Aug 2014	-	●	See Page 19
YBI Detour	Jul 2007	41	Dec 2010	Oct 2010	(2)	●	See Page 15
YBI Transition Structures (YBITS)	Nov 2013	12	Nov 2014	Mar 2015	4		See Page 16
YBITS 1			Sep 2013	Dec 2013	3	●	
YBITS 2			Nov 2014	Mar 2015	4	●	
YBITS Landscaping			TBD	TBD	-	●	
Oakland Touchdown	Nov 2013	12	Nov 2014	Nov 2014	-		See Page 29
OTD 1			Jun 2010	Jun 2010	-	●	
OTD 2			Nov 2014	Nov 2014	-	●	
OTD Electrical Systems			TBD	TBD	-	●	
Submerged Electric Cable			Jan 2008	Jan 2008	-	●	
Existing Bridge Demolition	Sep 2014	12	Sep 2015	Dec 2015	3	●	
Stormwater Treatment Measures	Mar 2008	-	Mar 2008	Mar 2008	-	●	
<b>SFOBB East Span Bridge Opening and Other Milestones</b>							
OTD Westbound Access			Aug 2009	Aug 2009	-	●	
YBI Detour Open			Sep 2009	Sep 2009	-	●	See Page 15
Westbound Open	Sep 2011	26	Dec 2013	Aug 2013	(4)	●	
Eastbound Open	Sep 2012	14	Dec 2013	Aug 2013	-	●	
<b>Antioch Bridge Seismic Retrofit</b>							
Contract Completion			Aug 2012	May 2012	(3)	●	See Page 34
<b>Dumbarton Bridge Seismic Retrofit</b>							
Contract Completion			Sep 2013	Sep 2013	-	●	See Page 36

<sup>1</sup> The Net Programmatic Risks of \$202.8 million comprises \$195.8 million program level risks and \$7 million risk reconciliation.

<sup>2</sup> Figures may not sum up to totals due to rounding effects.

## Regional Measure 1 Program Cost Summary

	Contract Status	BATA Baseline Budget (July 2005)	BATA Approved Changes	Current BATA Approved Budget (December 2010)	Cost to Date (December 2010)	Current Cost Forecast (December 2010)	Cost Variance	Cost Status
		a	b	c = a + b	d	e	f = e - c	
<b>Interstate 880/Route 92 Interchange Reconstruction</b>								
Capital Outlay Construction	Construction	94.8	66.2	161.0	117.5	161.0	-	●
Capital Outlay Support		28.8	34.6	63.4	55.4	63.4	-	●
Capital Outlay Right-of-Way		9.9	7.0	16.9	13.9	16.9	-	●
Project Reserve		0.3	3.4	3.7	-	3.7	-	
<b>Total I-880/SR-92 Interchange Reconstruction</b>		<b>133.8</b>	<b>111.2</b>	<b>245.0</b>	<b>186.8</b>	<b>245.0</b>	-	
<b>Other Completed Program Projects</b>		<b>1,978.8</b>	<b>182.6</b>	<b>2,161.4</b>	<b>2,087.6</b>	<b>2,161.4</b>	-	
<b>Total Regional Measure 1 Toll Bridge Program<sup>1</sup></b>		<b>2,112.6</b>	<b>293.8</b>	<b>2,406.4</b>	<b>2,274.4</b>	<b>2,406.4</b>	-	

- Within approved schedule and budget
  - Identified potential project risks that could significantly impact approved schedules and budgets if not mitigated
  - Known project impacts with forthcoming changes to approved schedules and budgets
- <sup>1</sup> Figures may not sum up to totals due to rounding effects.

## Regional Measure 1 Program Schedule Summary

	BATA Baseline Completion Schedule (July 2005)	BATA Approved Changes (Months)	Current BATA Approved Completion Schedule (December 2010)	Current Completion Forecast (December 2010)	Schedule Variance (Months)	Schedule Status	Remarks/Notes
	g	h	i = g + h	j	k = j - i	l	
<a href="#">Interstate 880/Route 92 Interchange Reconstruction</a>							
Contract Completion							
Interchange Reconstruction	Dec 2010	9	Jun 2011	Sep 2011	3	●	See Page 48







View from Treasure Island Looking East at Third Lift of the  
Self-Anchored Suspension Bridge Tower

# TOLL BRIDGE SEISMIC RETROFIT PROGRAM

## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### San Francisco-Oakland Bay Bridge Seismic Retrofit Strategy

When a 250-ton section of the upper deck of the East Span collapsed during the 7.1-magnitude Loma Prieta Earthquake in 1989, it was a wake-up call for the entire Bay Area. While the East Span quickly reopened within a month, critical questions lingered: How could the Bay Bridge—a vital regional lifeline structure—be strengthened to withstand the next major earthquake? Seismic experts from around the world determined that to make each separate element seismically safe on a bridge of this size, the work must be divided into numerous projects. Each project presents unique challenges. Yet there is one common challenge — the need to accommodate the more than 280,000 vehicles that cross the bridge each day.



West Approach Overview

#### West Approach Seismic Replacement Project

**Project Status: Completed 2009**

Seismic safety retrofit work on the West Approach in San Francisco—bounded on the west by 5th Street and on the east by the anchorage of the west span at Beale Street—involved completely removing and replacing this one-mile stretch of Interstate 80, as well as six on- and off-ramps within the confines of the West Approach's original footprint. This project was completed on April 8, 2009.

#### West Span Seismic Retrofit Project

**Project Status: Completed 2004**

The West Span lies between Yerba Buena Island and San Francisco and is made up of two complete suspension spans connected at a center anchorage. Retrofit work included adding massive amounts of steel and concrete to strengthen the entire West Span, along with new seismic shock absorbers and bracing.



San Francisco-Oakland Bay Bridge West Span





## East Span Seismic Replacement Project

Rather than a seismic retrofit, the two-mile long East Span is being completely rebuilt. When completed, the new East Span will consist of several different sections, but will appear as a single streamlined span. The eastbound and westbound lanes of the East Span will no longer include upper and lower decks. The lanes will instead be parallel, providing motorists with expansive views of the bay. These views will also be enjoyed by bicyclists and pedestrians, thanks to a new path on the south side of the bridge that will extend all the way to Yerba Buena Island. The new span will be aligned north of the existing bridge to allow traffic to continue to flow on the existing bridge as crews build the new span.

The new span will feature the world's longest Self-Anchored Suspension (SAS) bridge that will be connected to an elegant roadway supported by piers (Skyway), which will gradually slope down toward the Oakland shoreline (Oakland Touchdown). A new transition structure on Yerba Buena Island (YBI) will connect the SAS to the YBI Tunnel and will transition the East Span's side-by-side traffic to the upper and lower decks of the tunnel and West Span.

When construction of the new East Span is complete and vehicles have been safely rerouted to it, the original East Span will be demolished.



Architectural Rendering of the New East Span of the San Francisco-Oakland Bay Bridge



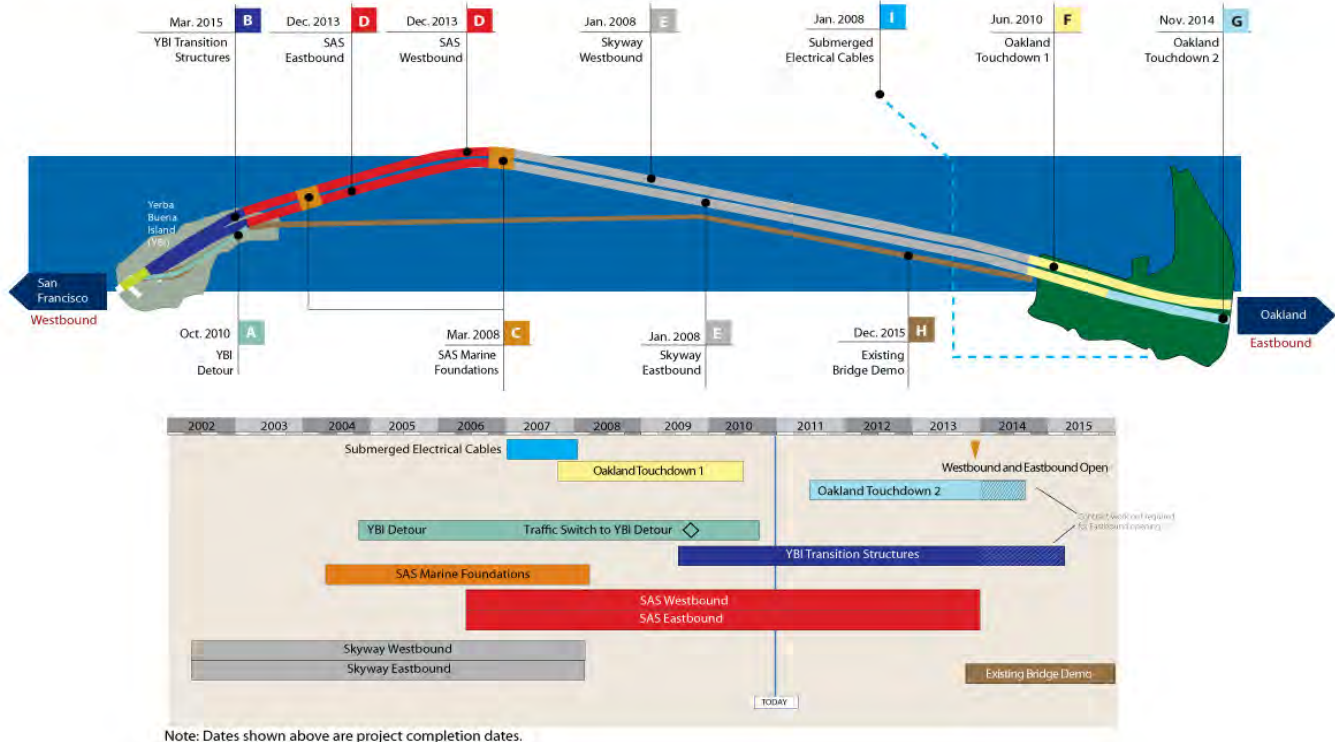
## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### San Francisco-Oakland Bay Bridge East Span Replacement Project Summary

The new East Span bridge can be split into four major components—the Skyway and the Self-Anchored Suspension bridge in the middle and the Yerba Buena Island Transition Structures and Oakland Touchdown approaches at either end. Each component is being constructed by one to three separate contracts that have been sequenced together [to reduce schedule risk](#).

Highlighted below are the major East Span contracts and their schedules. The letter designation before each contract corresponds to contract descriptions in the report.

#### SFOBB East Span Work Sequence





## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### San Francisco-Oakland Bay Bridge East Span Replacement Project Summary

#### Yerba Buena Island Detour (YBID)

As with all of the Bay Bridge's seismic retrofit projects, crews must build the Yerba Buena Island Transition Structures (YBITS) without disrupting traffic. To accomplish this task, YBID eastbound and westbound traffic was shifted off the existing roadway and onto a temporary detour on Labor Day weekend 2009. Drivers will use this detour, just south of the original roadway, until traffic is moved onto the new East Span.

#### A YBID Contract

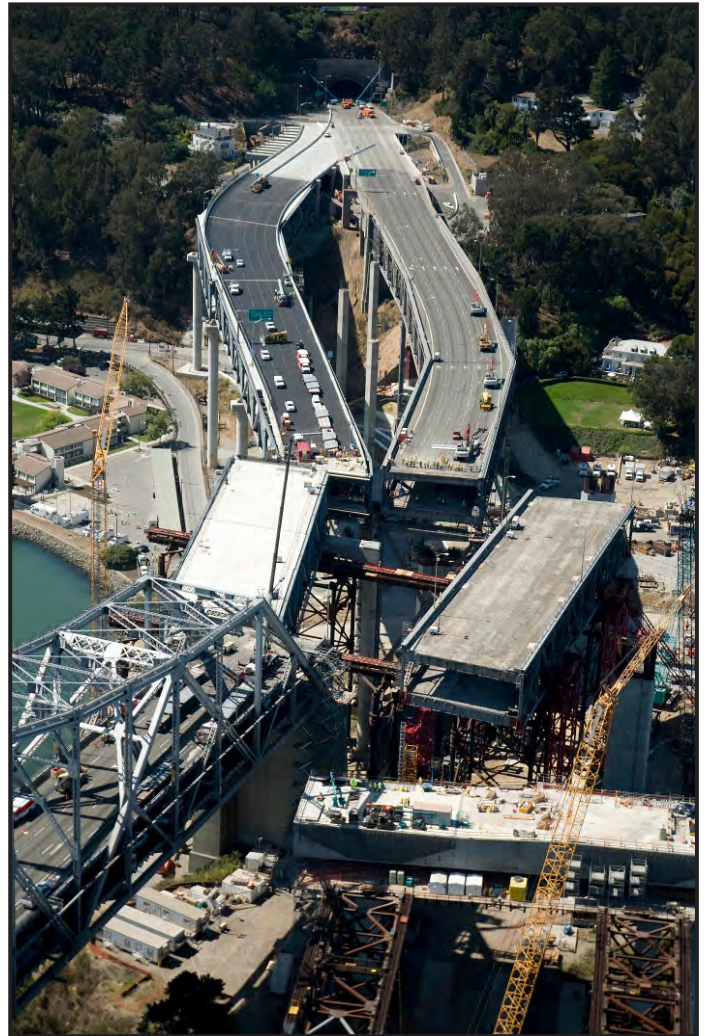
Contractor: C.C. Myers, Inc

Approved Capital Outlay Budget: \$492.8 M

Status: Completed October 2010

This contract was originally awarded in early 2004 to construct the detour structure for the planned 2006 opening of the new East Span. Due to the re-advertisement of the SAS superstructure contract in 2005 because of a lack of funding at the time, the bridge opening was rescheduled to 2013. To better integrate the contract into the current East Span schedule and to improve seismic safety and mitigate future construction risks, the TBPOC has approved a number of changes to the contract, including adding the deck replacement work near the tunnel that was rolled into place over Labor Day weekend 2007, advancing future transition structure foundation work and making design enhancements to the temporary detour structure. These changes have increased the budget and forecast for the contract to cover the revised project scope and **reduce** project risks.

**Status:** Completed.



YBI East Tie-In Rolled In Labor Day 2009



West Tie-In Phase #1 Rolled in on Labor Day 2007



## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### San Francisco-Oakland Bay Bridge East Span Replacement Project Yerba Buena Island Transition Structures (YBITS)

The new Yerba Buena Island Transition Structures (YBITS) will connect the new SAS bridge span to the existing Yerba Buena Island Tunnel, transitioning the new side-by-side roadway decks to the upper and lower decks of the tunnel. The new structures will be cast-in-place reinforced concrete structures that will look very similar to the already constructed Skyway structures. While some YBITS foundations and columns have been advanced by the YBID contract, the remaining work will be completed under three separate YBITS contracts.

#### **B** YBITS #1 Contract

Contractor: MCM Construction, Inc.

Approved Capital Outlay Budget: \$144.0 M

Status: 17% Complete as of December 2010



YBITS #1 Access Trestle and Footing Shoring

The YBITS #1 contract will construct the mainline roadway structures from the SAS bridge to the YBI tunnel. On February 4, 2010, Caltrans awarded the YBITS #1 Contract to MCM Construction, Inc.

**Status:** MCM Construction, Inc., continues to work on the access trestle and eastbound and westbound footings and columns. Westbound frame #2 falsework is scheduled to start in early January 2011.



Rendering of Overview of Future Yerba Buena Island Transition Structures in Progress (top) with Completed Detour Viaduct (bottom)



## YBITS #2 Contract

Contractor: TBD

Approved Capital Outlay Budget: \$59.0 M

Status: **In Design**

The YBITS #2 contract will demolish the detour viaduct after all traffic is shifted to the new bridge and will construct a new eastbound on-ramp to the bridge in its place. The new ramp will also provide the final link for bicycle/pedestrian access off the SAS bridge onto Yerba Buena Island.

## YBITS Landscaping Contract

Contractor: TBD

Approved Capital Outlay Budget \$3.3M

Status: **In Design**

Upon completion of the YBITS work, a follow-on landscaping contract will be executed to re-plant and landscape the area.

## Yerba Buena Island Transition Structures Advanced Work

Due to the re-advertisement of the SAS superstructure contract in 2005, it became necessary to temporarily suspend the detour contract and make design changes to the viaduct. To make more effective use of the extended contract duration and to reduce overall project schedule and construction risks, the TBPOC approved the advancement of foundation and column work from the Yerba Buena Island Transition Structures contract.

**Status:** The YBID contractor completed the YBITS advanced substructure work in October 2010.



Yerba Buena Island Transition Structures #1 Falsework and Trestle Erection

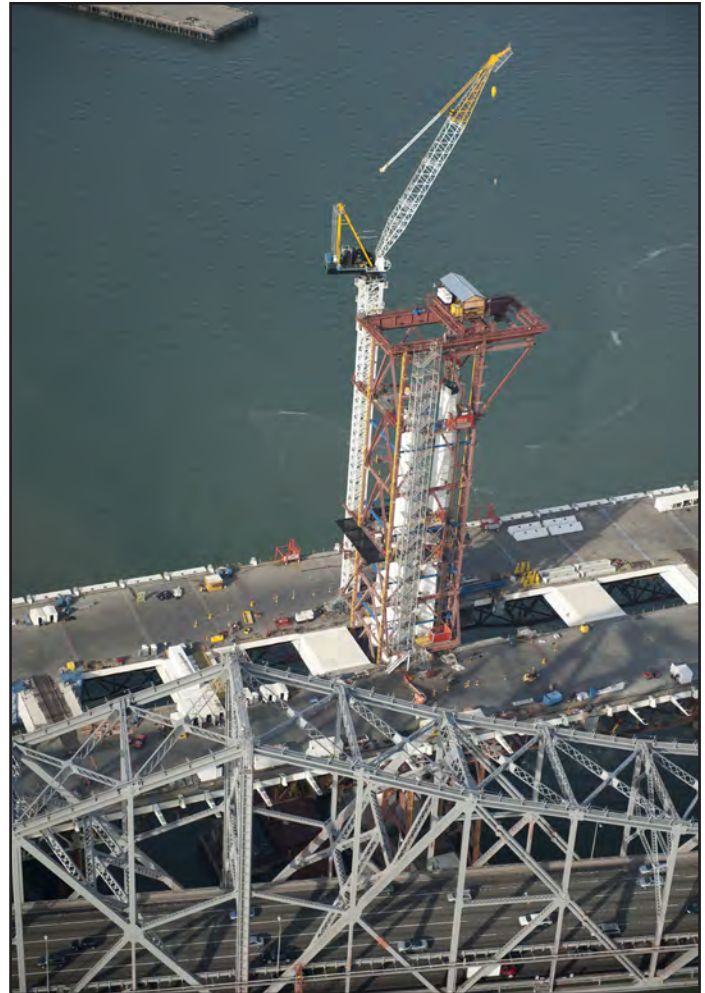


## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### San Francisco-Oakland Bay Bridge East Span Replacement Project Self-Anchored Suspension (SAS) Bridge

If one single element bestows world class status on the new Bay Bridge East Span, it is the Self-Anchored Suspension (SAS) bridge. This engineering marvel will be the world's largest SAS span at 2,047 feet in length, as well as the first bridge of its kind built with a single tower.

The SAS was separated into three separate contracts— construction of the land-based foundations and columns at Pier W2; construction of the marine-based foundations and columns at Piers T1 and E2; and construction of the SAS steel superstructure, including the tower, roadway, and cabling. Construction of the foundations at Pier W2 and at Piers T1 and E2 was completed in 2004 and 2007, respectively.



Erecting Tower Lift 3 Shaft 2

### SAS Land Foundation Contract

Contractor: West Bay Builders, Inc.

Approved Capital Outlay Budget: \$26.4 M

Status: Completed October 2004

The twin W2 columns on Yerba Buena Island provide essential support for the western end of the SAS bridge, where the single main cable for the suspension span will extend down from the tower and wrap around and under the western end of the roadway deck. Each of these huge columns required massive amounts of concrete and steel and are anchored 80 feet into the island's solid bedrock.

### C SAS Marine Foundations Contract

Contractor: Kiewit/FCI/Manson, Joint Venture

Approved Capital Outlay Budget: \$280.9 M

Status: Completed January 2008

Construction of the piers at E2 and T1 required significant on-water resources to drive the foundation support piles down, not only to bedrock, but also through the bay water and mud (see rendering on facing page).

The T1 foundation piles extend 196 feet below the waterline and are anchored into bedrock with heavily reinforced concrete rock sockets that are drilled into the rock. Driven nearly 340 feet deep, the steel and concrete E2 foundation piles were driven 100 feet deeper than the deepest timber piles of the existing east span in order to get through the bay mud and reach solid bedrock.





## D SAS Superstructure Contract

Contractor: American Bridge/Fluor Enterprises, Joint Venture

Approved Capital Outlay Budget: \$2.05 B

Status: **66% Complete as of December 2010**

The SAS bridge is not just another suspension bridge. Rising 525 feet above mean sea level and embedded in rock, the single-tower SAS span is designed to withstand a massive earthquake. Traditional main cable suspension bridges have twin cables with smaller suspender cables connected to them. While there will appear to be two main cables on the SAS, there will actually only be one. This single cable will be anchored within the eastern end of the roadway, carried over the tower and then wrapped around the two side-by-side decks at the western end. The single-steel tower will be made up of four separate legs connected by shear link beams which function

much like a fuse in an electrical circuit. These beams will absorb most of the impact from an earthquake, preventing damage to the tower legs.

The next several pages highlight the construction sequence of the SAS and are followed by detailed updates on specific construction activities.



Architectural Rendering of New Self-Anchored Suspension Span and Skyway



## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### *Self-Anchored Suspension (SAS) Construction Sequence*

#### STEP 1 - CONSTRUCT TEMPORARY SUPPORT STRUCTURES

Temporary support structures will need to be erected from the Skyway to Yerba Buena Island to support the new SAS bridge during construction.

**Status:** Foundations and temporary support structures were completed in mid-September 2010.



#### STEP 2 - INSTALL ROADWAYS

The roadway boxes are being lifted into place by using the shear-leg crane barge. The boxes are being bolted and welded together atop the temporary support trusses to form two continuous parallel steel roadway boxes.

**Status:** Roadway boxes 10 east and west arrived on December 13, 2010 and roadway box 10 east was lifted into place on December 18, 2010. Fourteen crossbeams have been erected between the roadway boxes. Roadway boxes 11 east and west and Crossbeam 16 are forecast for shipment in January 2011.



#### STEP 3 - INSTALL TOWER

Each of the four legs of the tower will be erected in five separate lifts. The tower lifts will be installed using a temporary erection tower and lifting jacks.

**Status:** As of mid-November 2010, the first two tower lifts have been shipped and erected. The third tower shafts shipped on November 15, 2010, arrived at Pier 7 in Oakland on December 13, 2010, and erected between December 15 through 18, 2010. The fourth and fifth tower lifts are scheduled for shipment in January 2011.





#### STEP 4 - MAIN CABLE AND SUSPENDER INSTALLATION

The main cable will be pulled from the east end of the SAS bridge, over the tower, and wrapped around Pier W2 and again back over the tower and to the west end of the SAS bridge deck. Suspenders cables will be added to lift the roadway decks off the temporary support structure.

**Status:** Cable installation is pending the erection of the tower completion of roadway spans. All cables have been fabricated, shipped and stored in the warehouse at Pier 7 in Oakland.



#### STEP 5 - WESTBOUND AND EASTBOUND SEISMIC SAFETY OPENING

The new bridge will now open simultaneously in both the westbound and eastbound directions.

**Status:** Westbound and eastbound opening is forecast for December 2013.



## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### *Self-Anchored Suspension (SAS) Superstructure Fabrication Activities*

#### **Roadway and Tower Segments**

Like giant three-dimensional jigsaw puzzles, the roadway and tower lifts of the SAS bridge are hollow steel shells that are internally strengthened and stiffened by a highly engineered network of welded steel ribs and diaphragms. The use of steel in this manner allows for a flexible yet relatively light and strong structure able to withstand the massive loads placed on the bridge during seismic events.

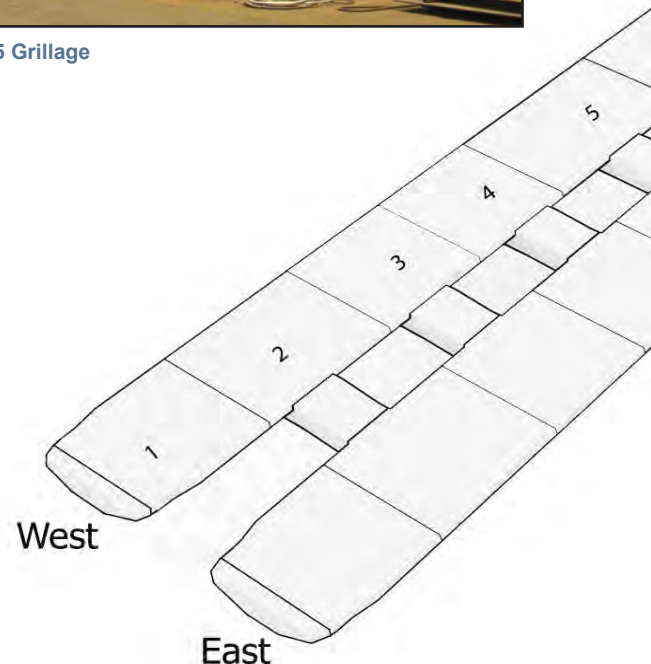
All components undergo a rigorous quality review by ZPMC, ABF, and Caltrans to ensure that only bridge components that have been built according to contract specifications will be shipped.

**Roadway Box Fabrication Status:** As shown in the diagram to the right, roadway boxes 1 through 10 east and west have been completed and shipped to the Bay Area. Roadway box 11 is forecast to ship in January 2011. Fabrication of sub-assemblies for roadway boxes 12, 13 and 14 started in March 2010 and are forecast to be replaced and shipped by July 2011.

**Tower Fabrication Status:** Each of the four legs of the tower is composed of five separate lifts. The first two lifts were completed by the end of October, 2010. The third lift of the tower arrived and was erected in December 2010. Lifts four and five are scheduled for shipment in January 2011. Remaining to be completed is the final tower head facade. The tower head is scheduled to be shipped in May 2011.



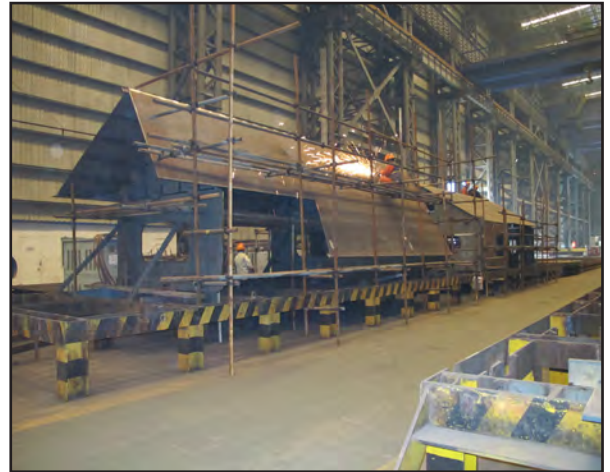
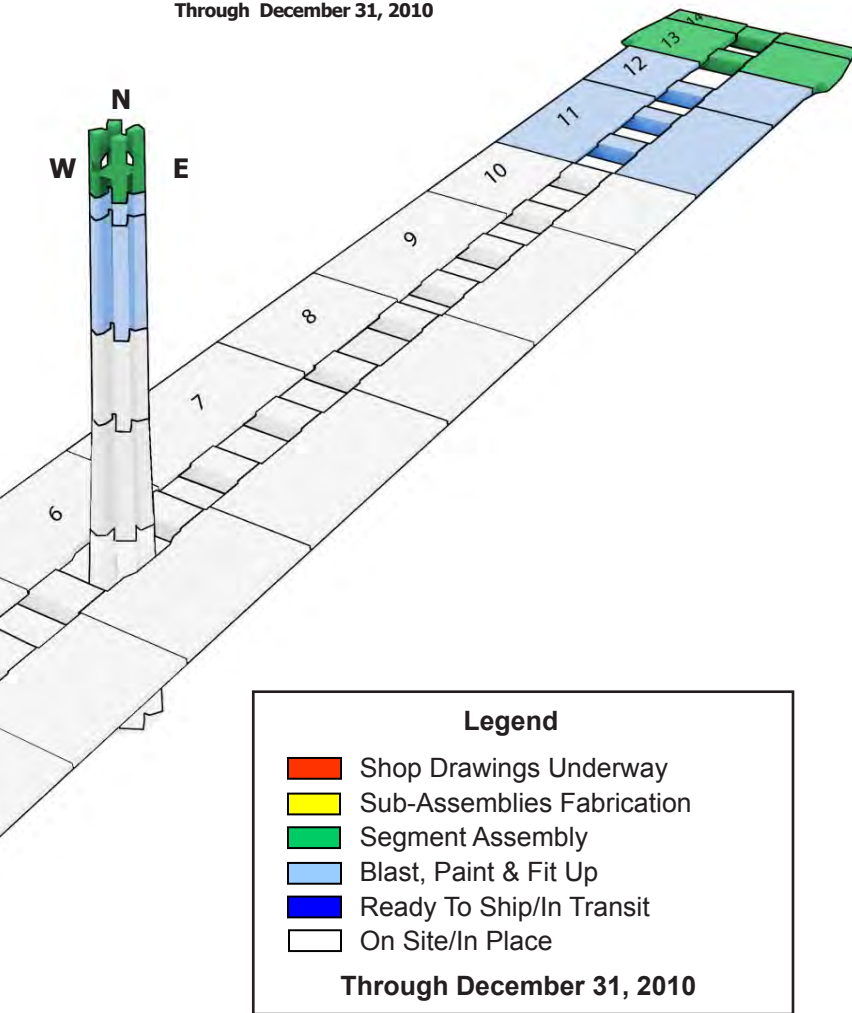
Tower Lift 5 Grillage





## Fabrication Progress Diagram

Through December 31, 2010



Tower Head



Looking East at 14 East



Tower Lift 4 Loaded onto Ship



Roadway Box Lift 14

## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### *Self-Anchored Suspension (SAS) Superstructure Fabrication Activities (cont.)*

#### **Cables and Suspenders**

One continuous main cable will be used to support the roadway deck of the SAS bridge. Anchored into the eastern end of the bridge, the main cable will be anchored with the roadway box at the east end of the SAS near Pier E1, extend over the main tower at T1, loop around the western end of the roadway decks at Pier W2, and then travel back over the main tower to the western end of the roadway box. The main cable will be made up of bundles of individual wire strands. Supporting the roadway decks to the main cable will be a number of smaller suspender cables. The main cable will be fabricated in China and the suspender cables in Missouri, USA.

**Status:** All tower cables have been fabricated and delivered to the job site and stored at Pier 7 warehouse in Oakland. **All cable bands are forecast to be completed and shipped to the job site by February 2011 and the suspender ropes were completed in December 2010. The hand ropes are scheduled for fabrication in January 2011.**

#### **Saddles, Bearings, Hinges, and Other Bridge Components**

The mounts on which the main cable and suspender ropes will sit are made from solid steel castings. Castings for the main cable saddles are being made by Japan Steel Works, while the cable bands and brackets are being made by Goodwin Steel in the United Kingdom.

The bridge bearings and hinges that support, connect, and transfer loads from the self-anchored suspension (SAS) span to the adjoining sections of the new east span are being fabricated in a number of locations. Work on the bearings is being performed in Pennsylvania, USA and Hochang, South Korea, while hinge pipe beams are being fabricated in Oregon, USA.

**Status:** The west and east deviation cable saddles and hinge K have been fabricated and erected on W2 cap beam. Hinge A pipe beams fabrication started in December and projected completion is November 2011.



Cable Bands Ready for Painting



Bronze Kettle for Casting Spherical Bearing Components



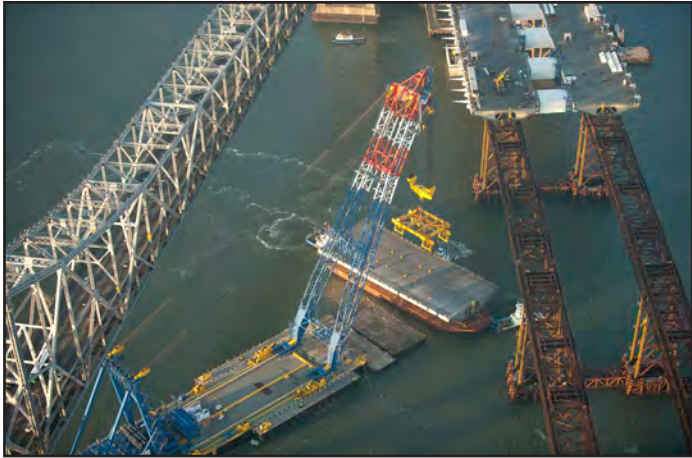
Pouring of Casting





## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### *Self-Anchored Suspension (SAS) Superstructure Field Activities*



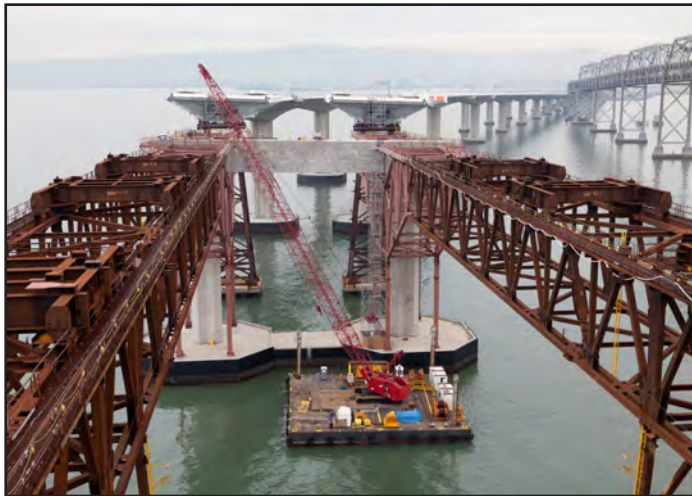
Shear-Leg Crane Barge

#### **Shear-Leg Crane Barge**

The massive shear-leg barge crane that is helping to build the SAS superstructure arrived in the San Francisco Bay on March 12, 2009 after a trans-Pacific voyage.

The crane and barge are separate units operating as a single entity named the “Left Coast Lifter.” The 400-by-100-foot barge is a U.S.-flagged vessel that was custom built in Portland, Oregon by U.S. Barge, LLC and outfitted with the crane by Shanghai Zhenhua Heavy Industry Co. Ltd. (ZPMC) at a facility near Shanghai, China. The crane’s boom weighs 992 tons and is 328 feet long. The crane can lift up to 1,873 tons, including the deck and tower boxes for the SAS.

**Status:** The shear-leg crane barge arrived at the job site March 2009. The crane has off-loaded and placed all temporary support structures and SAS roadway boxes and crossbeams.



Temporary Support Structures with E2 Cap Beam and Completed Skyway in background

#### **Temporary Support Structures**

To erect the roadway decks and tower of the bridge, temporary support structures were first put in place. Almost a bridge in itself, the temporary support structures stretch from the end of the completed Skyway back to Yerba Buena Island. For the tower, a strand jack system is being built into the tower’s temporary frame to elevate the upper sections of the tower into place. These temporary supports are being fabricated in the Bay Area, as well as in Oregon and in China at ZPMC.

**Status:** The temporary support structures are complete.

#### **Cap Beams**

Construction of the massive steel-reinforced concrete cap beams that link the columns at Piers W2 and E2 was left to the SAS superstructure contractor and represents the only concrete portions of work on that contract. The east and west ends of the SAS roadway will rest on the cap beams and the main cable will wrap around Pier W2, while anchoring into the east end of the SAS deck sections near E2.

**Status:** Completed in March 2009



Pier W2

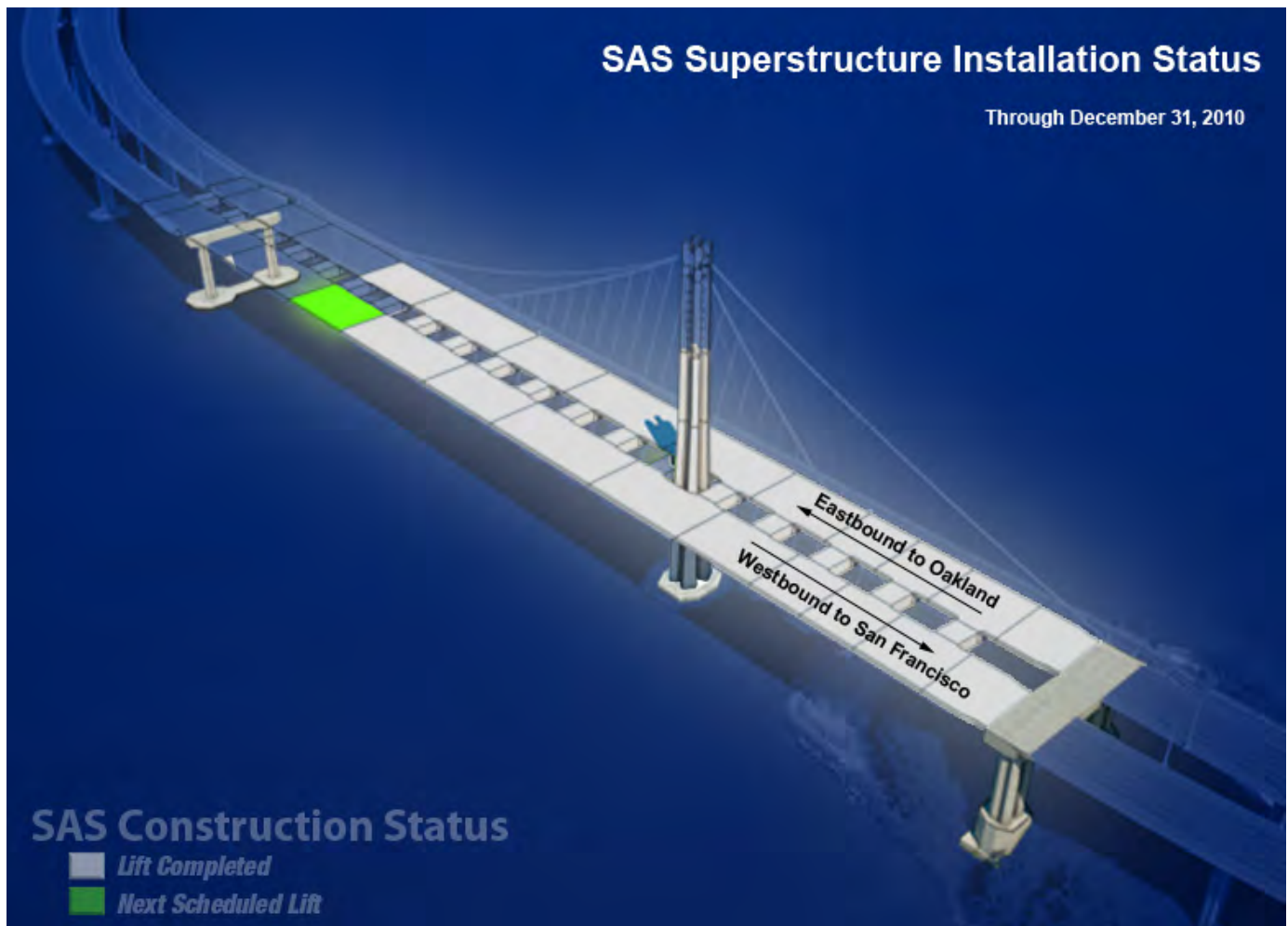
## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### *Self-Anchored Suspension (SAS) Superstructure Roadway and Tower Box Installation Activities*

Upon arrival in Oakland, the steel roadway and tower sections are off-loaded directly from the transport ship onto barges to await installation atop the temporary support structures. Steel roadway boxes will be installed from west to east. Due to the shallow waters near Yerba Buena Island, the eastbound lanes on the south side of the new bridge will be installed first, then to be followed by the westbound lanes. In total, there are 28 roadway boxes (14 in each direction) that range from 560 to 1660 tons and from 80 to 230 feet long.

The tower comprises four legs, each made up of four tower lifts that make up the majority of the height of the tower, the tower grillage, and finally the tower head.

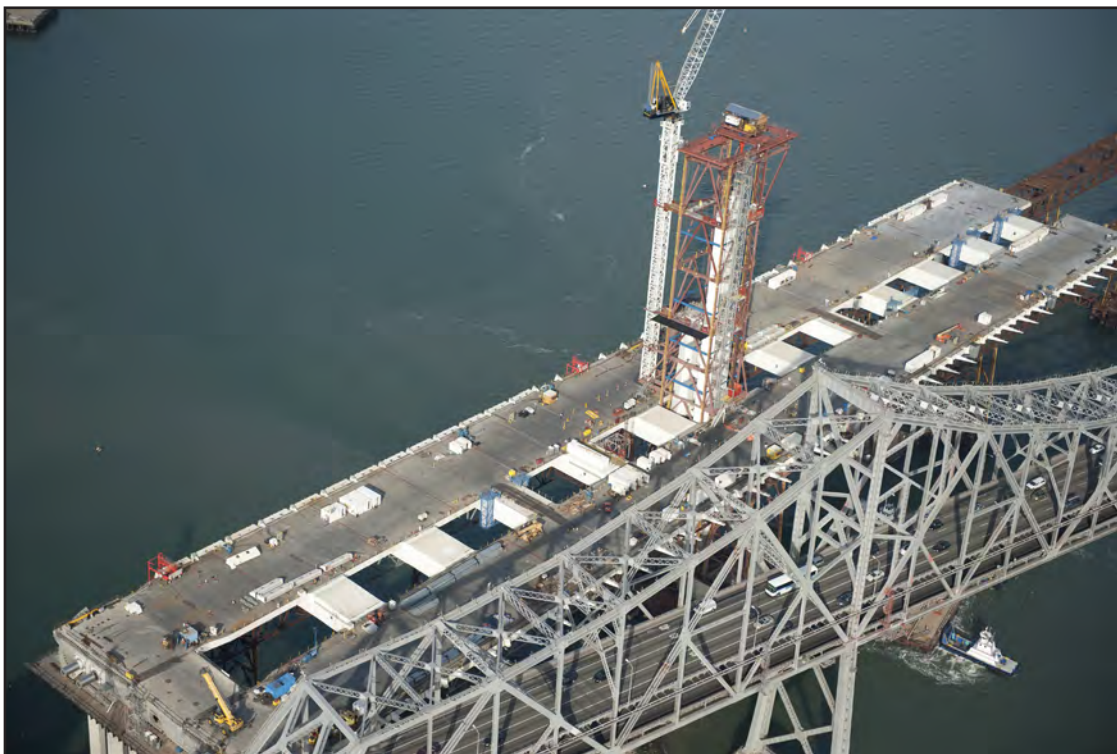
**Status:** On the roadway boxes, 19 of 28 (1 through 10 east and west) have been placed on top of temporary support structures to form a continuous roadway. **Tower lift 3 shafts have been lifted into place and are being welded and bolted together. Roadway boxes 11 east and west and tower lift four and five shafts are scheduled for shipment in January 2011. All other remaining tower sections will be completed and shipped by May 2011. Fabrication of roadway boxes 12 east and west will be completed and will ship in May 2011. Roadway boxes 13 and 14 east and west will be completed by the end of July 2011 and are expected to arrive at the job site in Oakland in August 2011.**







Overview of Progress of Roadway Boxes and Tower Lift 3 Partially Erected



Overview of Progress of Roadway Boxes and Tower Lift 3 Partially Erected

## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### San Francisco-Oakland Bay Bridge East Span Replacement Project Skyway

The Skyway, which comprises much of the new East Span, will drastically change the appearance of the Bay Bridge. Replacing the gray steel that currently cages drivers, a graceful, elevated roadway supported by piers will provide sweeping views of the bay.

#### **E** Skyway Contract

Contractor: Kiewit/FCI/Manson, Joint Venture

Approved Capital Outlay Budget: \$1.25 B

Status: Completed March 2008

Extending for more than a mile across Oakland mudflats, the Skyway is the longest section of the East Span. It sits between the new Self-Anchored Suspension (SAS) span and the Oakland Touchdown. In addition to incorporating the latest seismic-safety technology, the side-by-side roadway decks of the Skyway feature shoulders and lane widths built to modern standards.

The Skyway's decks are composed of 452 pre-cast concrete segments (standing three stories high), containing approximately 200 million pounds of structural steel, 120 million pounds of reinforcing steel, 200 thousand linear feet of piling and about 450 thousand cubic yards of concrete. These are the largest segments of their kind ever cast and were lifted into place by custom-made winches.

The Skyway marine foundation consists of 160 hollow steel pipe piles measuring eight feet in diameter and dispersed among 14 sets of piers. The 365-ton piles were driven more than 300 feet into the deep bay mud. The new East Span piles were battered or driven in at an angle, rather than vertically, to obtain maximum strength and resistance.

Designed specifically to move during a major earthquake, the Skyway features several state-of-the-art seismic safety innovations, including 60-foot-long hinge pipe beams. These beams will allow deck segments on the Skyway to move, enabling the deck to withstand greater motion and to absorb more earthquake energy.



Overview of the Skyway and New Roadway Box Installments  
Looking West Toward Yerba Buena Island





## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### San Francisco-Oakland Bay Bridge East Span Replacement Project Oakland Touchdown

When completed, the Oakland Touchdown (OTD) structures will connect Interstate 80 in Oakland to the new side-by-side decks of the new East Span. For westbound drivers, the OTD will be their introduction to the graceful new East Span. For eastbound drivers from San Francisco, this section of the bridge will carry them from the Skyway to the East Bay, offering unobstructed views of the Oakland hills.

The OTD will be constructed through two contracts. The first contract will build the new westbound lanes, as well as part of the eastbound lanes. The second contract to complete the eastbound lanes cannot fully begin until westbound traffic is shifted onto the new bridge. This enables a portion of the upper deck of the existing bridge to be demolished allowing for a smooth transition for the new eastbound lanes in Oakland.

#### **F** Oakland Touchdown #1 Contract

**Contractor:** MCM Construction, Inc.  
**Approved Capital Outlay Budget:** \$212.0 M  
**Status:** Completed June 2010

The OTD #1 contract constructs the entire 1,000-foot-long westbound approach from the toll plaza to the Skyway. When completed, the westbound approach structure will provide direct access to the westbound Skyway. In the eastbound direction, the contract will construct a portion of the eastbound structure and all of the eastbound foundations that are not in conflict with the existing bridge.

**Status:** MCM Construction, Inc. completed OTD #1 westbound and eastbound phase 1 on June 8, 2010.

#### Oakland Touchdown Detour

With the incentives and disincentives put into place to accelerate the completion of the SAS before the end of 2013, the TBPOC is exploring similar acceleration options the OTD #2 contract to insure a simultaneous opening of the bridge as soon as possible. Similar to an earlier TBPOC decisions to advance construction off the critical path, the TBPOC is implementing an acceleration option to complete the eastbound Oakland touchdown structure that currently is in conflict with the existing bridge. This option will require temporary lane realignments and widening of the western end of the

existing bridge and will allow for both eastbound and westbound directions of the new bridge to open to traffic when the self-anchored suspension bridge is ready.

#### **G** Oakland Touchdown #2 Contract

**Contractor:** TBD  
**Approved Capital Outlay Budget:** \$62.0 M  
**Status:** In Design

The OTD #2 contract will complete the eastbound approach structure from the end of the Skyway to Oakland. This extra work is critical to the eastbound opening of the new bridge, by December 2013.

**Status:** The TBPOC evaluated options to expedite construction of portions of OTD #2 in order to have both east and west bound approaches ready for traffic as soon as the SAS is ready for traffic. The remaining portions of OTD #2 are in design.



Aerial View of Oakland Touchdown Looking West



## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### San Francisco-Oakland Bay Bridge East Span Replacement Project Other Contracts

A number of contracts needed to relocate utilities, clear areas of archeological artifacts, and prepare areas for future work have already been completed. The last major contract will be the eventual demolition and removal of the existing bridge, which by that time will have served the Bay Area for nearly 80 years. Following is a status of some the other East Span contracts.

#### East Span Interim Seismic Retrofit

Contractors: 1) California Engineering  
2) Balfour Beatty

Approved Capital Outlay Budget: \$30.8 M

Status: Completed October 2000

After the 1989 Loma Prieta Earthquake, and before the final retrofit strategy was determined for the East Span, Caltrans completed an interim retrofit of the existing bridge to prevent a catastrophic collapse of the bridge should a similar earthquake occur before the East Span was completely replaced. The interim retrofit was performed under two separate contracts that lengthened pier seats, added some structural members, and strengthened areas of the bridge so they would be more resilient during an earthquake.



Archeological Investigations



Existing East Span of the San Francisco-Oakland Bay Bridge

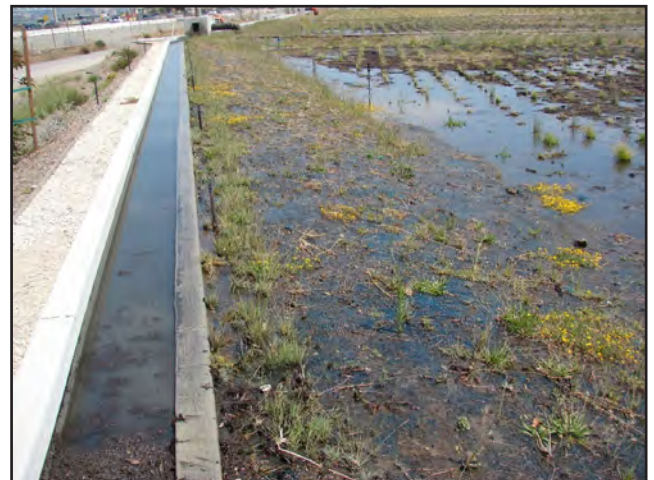
#### Stormwater Treatment Measures

Contractor: Diablo Construction, Inc.

Approved Capital Outlay Budget: \$18.3 M

Status: Completed December 2008

The Stormwater Treatment Measures contract implemented a number of best practices for the management and treatment of stormwater runoff. Focused on the areas around and approaching the toll plaza, the contract added new drainage and built new bio-retention swales and other related constructs.



Stormwater Retention Basin





## Yerba Buena Island Substation

Contractor: West Bay Builders

Approved Capital Outlay Budget: \$11.6 M

Status: Completed May 2005

This contract relocated an electrical substation just east of the Yerba Buena Island Tunnel in preparation for the new East Span.

## Pile Installation Demonstration

Contractor: Manson and Dutra, Joint Venture

Approved Capital Outlay Budget: \$9.2 M

Status: Completed December 2000

While large-diameter battered piles are common in offshore drilling, the new East Span is one of the first bridges to use them in its foundations. To minimize project risks and build industry knowledge, a pile installation demonstration project was initiated to prove the efficacy of the proposed technology and methodology. The demonstration was highly successful and helped result in zero contract change orders or claims for pile driving on the project.

## H Existing Bridge Demolition

Contractor: TBD

Approved Capital Outlay Budget: \$239.1 M

Status: In Design

Design work on the contract will start in earnest as the opening of the new bridge to traffic approaches.



New YBI Electrical Substation

## I Electrical Cable Relocation

Contractor: Manson Construction

Approved Capital Outlay Budget: \$9.6 M

Status: Completed January 2008

A submerged cable from Oakland that is close to where the new bridge will touch down supplies electrical power to Treasure Island. To avoid any possible damage to the cable during construction, two new replacement cables were run from Oakland to Treasure Island. The extra cable was funded by the Treasure Island Development Authority.

## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### Quarterly Environmental Compliance Highlights

Overall environmental compliance for the SFOBB East Span project has been a success. All weekly, monthly and annual compliance reports to resource agencies have been delivered on time. There are no comments from receiving agencies. The tasks for the current quarter are focused on mitigation monitoring. Key successes in this quarter are as follows:

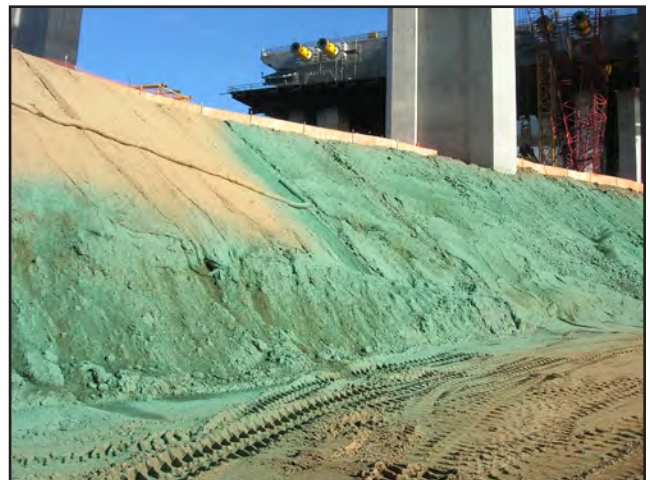
- Bird monitoring was conducted weekly in the active construction area. Monitors did not observe any indication that birds were disturbed due to the East Span construction activities.
- Peregrine falcon monitoring for the 2010/2011 nesting season began on December 3, 2010 and will continue through June 2011. Monitors have observed peregrines flying through and roosting within the project area.
- San Francisco-Oakland Bay Bridge (SFOBB) environmental compliance and storm water pollution prevention plan (SWPPP) inspections were conducted weekly at all active project sites. The project team continues to work closely with contractors to ensure compliance with environmental permits and regulations and improve SWPPP and best management practices.
- On December 1, 2010 Caltrans submitted a request for Amendment No. 29 to San Francisco Bay Conservation and Development Commission (BCDC) Permit No. 8-01 for the proposed repaving and temporary use of Burma Road, which is part of Phase 1 of the Temporary Oakland Touchdown (OTD) Detour for SFOBB Acceleration.
- On December 7, 2010 Caltrans received Amendment Nos. 27 and 28 to BCDC Permit No. 8-01. Amendment No. 27 authorized an extension of time to guarantee public access improvement at the Oakland Touchdown and on Yerba Buena Island. Amendment No. 27 also authorized the construction of a bus-turnaround which will improve public access to the new SFOBB. Amendment No. 28 extended permit deadline for the removal of temporary structures associated with the South-South Detour.
- Caltrans is working with agencies to explore options to meet requirements for shorebird roosting habitat mitigation.



Peregrine Falcon Nesting Undisturbed



Silt Fencing Best Management Practices



Bonded Fiber Matrix Hydroseed Best Management Practices



First Shaft of the Third Lift of the Tower Being Lifted into Place





## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### Antioch Bridge Seismic Retrofit Project

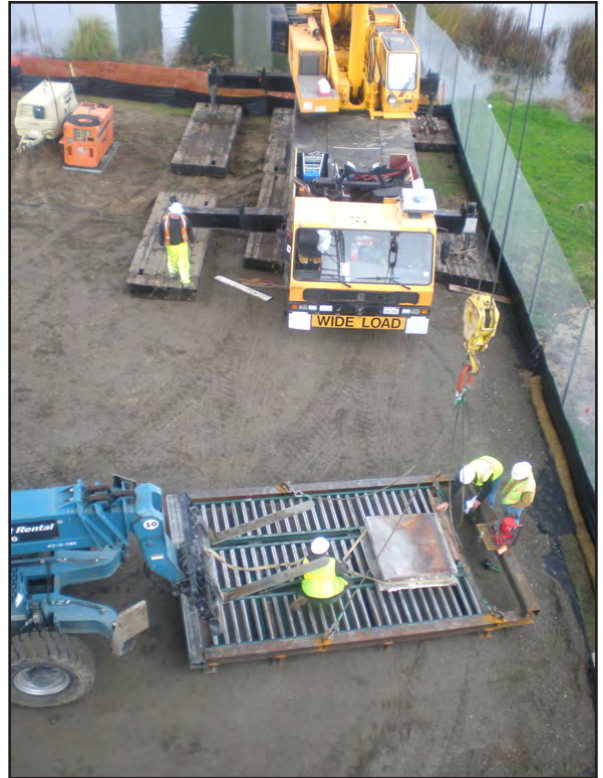
Contractor: California Engineering Contractors, Inc.

Approved Capital Outlay Budget: \$70.0 M

Status: 33% Complete as of December 2010

Serving the Delta region of the Bay Area, the Antioch Bridge takes State Route 160 traffic over the San Joaquin River, linking eastern Contra Costa County with Sacramento County. The current 1.8-mile-long steel plate girder bridge was opened in 1978 with one lane in each direction. The major retrofit measure for the bridge includes installing seismic isolation bearings at each of the 41 piers, strengthening piers 12 through 31 with steel cross-bracing between column bents and installing steel casings at all columns located at the Sherman Island approach slab bridge.

**Status:** Bearing replacement work continues on the Antioch side of the Bridge. Six of 82 new isolation bearings are currently installed. 22 bearings have been fabricated at the EPS facility in Mare Island. Cross-brace fabrication continues at Brooklyn Ironworks in Washington State. Three of 12 cross braces are completed. Eighty five out of 116 column casings have been fabricated and are in the painting process at the Trade Winds facility in Daegu, South Korea.



Existing Bearing Removed from Pier No. 7



Piers Being Fitted for Construction Access Scaffolding to Allow for Drilling and Bonding of Reinforcing Steel at Cross-Frame Pedestals





Work Platforms at Pier 7 and Jacks Installed under Girder Prior to Jacking



Jacking Pins at Pier 7 Prior to Setting Jacks

## Dumbarton Bridge Seismic Retrofit Project

Contractor: Shimmick Construction Company, Inc.

Approved Capital Outlay Budget: \$92.7 M

Status: 14% Complete as of December 2010

The current Dumbarton Bridge was opened to traffic in 1982 linking the cities of Newark in Alameda County and East Palo Alto in San Mateo County. The 1.6-mile long bridge has six lanes (three in each direction) and an eight-foot bicycle/pedestrian pathway. The bridge is a combination of reinforced concrete and steel girders that support a reinforced lightweight concrete roadway on reinforced concrete columns. The current retrofit strategy for the bridge includes superstructure and deck modifications and installation of isolation bearings.



Dumbarton Bridge

**Status:** Pre-stressed concrete piles have been driven for the new Belvedere lookout. Retrofit of the curtain wall hangers is ongoing at the east approach slab structure. The 48-inch steel piles have been driven adjacent to the east approach slab structure. Fabrication has begun on the rebar cages for the concrete infill in the 48-inch piles and the orthogonal column.

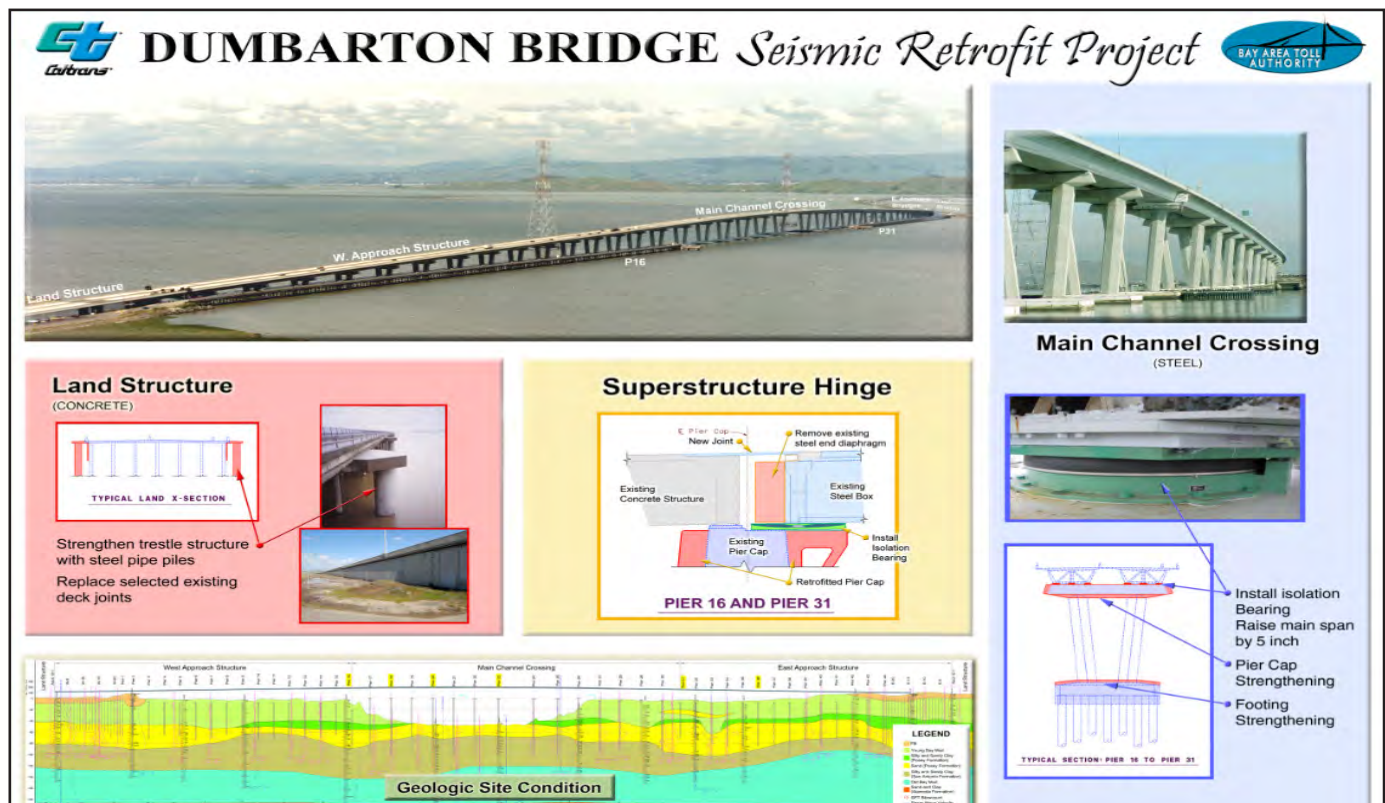


Diagram of Proposed Retrofit Work on the Dumbarton Bridge





Curtain Walls Removed along West Approach for Preparation of Driving 48-Inch Diameter Piles



Crane Positioning 48-inch Pile at East Approach Prior to Driving Pile

## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### Other Completed Projects

In the 1990s, the State Legislature identified seven of the nine state-owned toll bridges for seismic retrofit. In addition to the San Francisco-Oakland Bay Bridge, these included the Benicia-Martinez, Carquinez, Richmond-San Rafael and San Mateo-Hayward bridges in the Bay Area, and the Vincent Thomas and Coronado bridges in Southern California. Other than the East Span of the Bay Bridge, the retrofits of all of the bridges have been completed as planned.

#### San Mateo-Hayward Bridge Seismic Retrofit Project

**Project Status: Completed 2000**

The San Mateo-Hayward Bridge seismic retrofit project focused on strengthening the high-rise portion of the span. The foundations of the bridge were significantly upgraded with additional piles.



High-Rise Section of San Mateo-Hayward Bridge

#### 1958 Carquinez Bridge Seismic Retrofit Project

**Project Status: Completed 2002**

The eastbound 1958 Carquinez Bridge was retrofitted in 2002 with additional reinforcement of the cantilever thru-truss structure.



1958 Carquinez Bridge (foreground) with the 1927 Span (middle) under Demolition and the New Alfred Zampa Memorial Bridge (background)

#### 1962 Benicia-Martinez Bridge Seismic Retrofit Project

**Project Status: Completed 2003**

The southbound 1962 Benicia-Martinez Bridge was retrofitted to "Lifeline" status with the strengthening of the foundations and columns and the addition of seismic bearings that allow the bridge to move during a major seismic event. The Lifeline status means the bridge is designed to sustain minor to moderate damage after an event and to reopen quickly to emergency response traffic.



1962 Benicia-Martinez Bridge (right)



## Richmond-San Rafael Bridge Seismic Retrofit Project

**Project Status: Completed 2005**

The Richmond-San Rafael Bridge was retrofitted to a “No Collapse” classification to avoid catastrophic failure during a major seismic event. The foundations, columns, and truss of the bridge were strengthened, and the entire low-rise approach viaduct from Marin County was replaced.



Richmond-San Rafael Bridge

## Los Angeles-Vincent Thomas Bridge Seismic Retrofit Project

**Project Status: Completed 2000**

The Vincent Thomas Bridge is a 1,500-foot long suspension bridge crossing the Los Angeles Harbor in Los Angeles that links San Pedro with Terminal Island. The bridge was one of two state-owned toll bridges in Southern California (the other being the San Diego-Coronado Bridge). Opened in 1963, the bridge was seismically retrofitted as part of the TBSRP in 2000.



Los Angeles-Vincent Thomas Bridge

## San Diego-Coronado Bridge Seismic Retrofit Project

**Project Status: Completed 2002**

The San Diego-Coronado Bridge crosses over San Diego Bay and links the cities of San Diego and Coronado. Opened in 1969, the 2.1-mile long bridge was seismically retrofitted as part of the Toll Bridge Seismic Retrofit Project in 2002.



San Diego-Coronado Bridge

## TOLL BRIDGE SEISMIC RETROFIT PROGRAM Risk Management Program Update

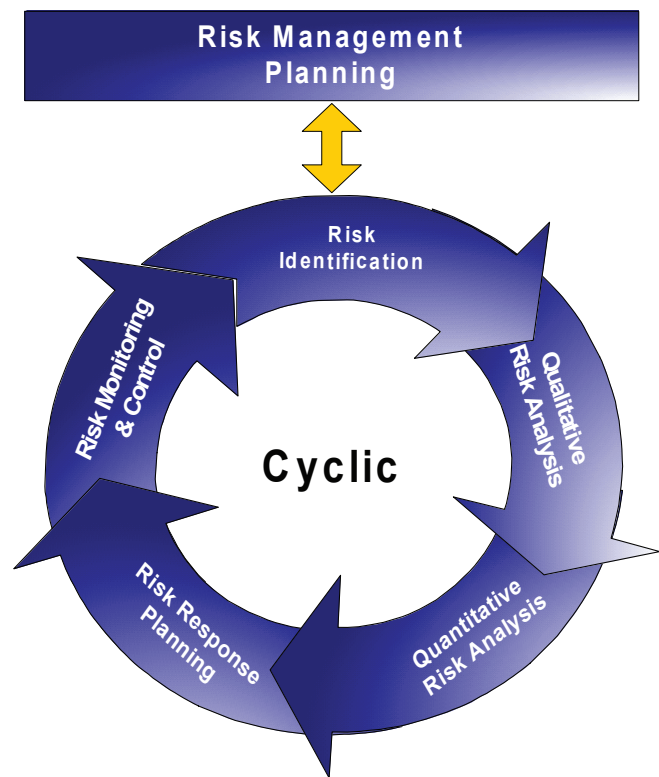
### POTENTIAL DRAW ON PROGRAM RESERVE (PROGRAM CONTINGENCY)

Assembly Bill (AB) 144 provides that Caltrans “regularly reassess its reserves for potential claims and unknown risks, incorporating information related to risks identified and quantified through its risk assessment processes.”

AB 144 set a \$900 million Program Reserve (also referred to as the program contingency). On October 11, 2009, Governor Schwarzenegger approved Assembly Bill No. 1175 that added the Dumbarton and Antioch Bridges to the Toll Bridge Seismic Retrofit Program and this resulted in changes to program contingency. The program contingency is currently \$415 million according to the TBPOC approved budget.

The Caltrans-approved TBSRP Risk Management Plan provides for the determination of the estimated potential draw on program contingency each quarter based on the total of all risks and the contingencies remaining from the contracts. Each contract in design has an assigned contingency allowance. A contract in construction has a remaining contingency, which is the difference between its budget and the sum of bid items, state-furnished materials, contract change orders and remaining supplemental work. Capital outlay support has no identified contingency allowance. The total of the contingencies is the amount that is available to cover the risks of all contracts, program-level risks (the risks not assigned to a particular contract), and capital outlay support risks. The amount by which the sum of all risks may exceed the total of all contingencies would represent a potential draw on the program contingency (i.e., program reserve).

The Caltrans-approved TBSRP Risk Management Plan provides for the determination of the estimated potential draw on program contingency each quarter, and compares it to the current balance in the program contingency. The Caltrans-approved



TBSRP Risk Management Plan provides for the determination of the estimated potential draw on program contingency each quarter, and compares it to the current balance in the program contingency. The fourth quarter of 2010 potential draw curve is shown in Figure 1 on the following page.

As of the end of the fourth quarter of 2010, the 50 percent probable draw on program contingency is \$144 million. The potential draw ranges from about \$20 million to \$280 million.

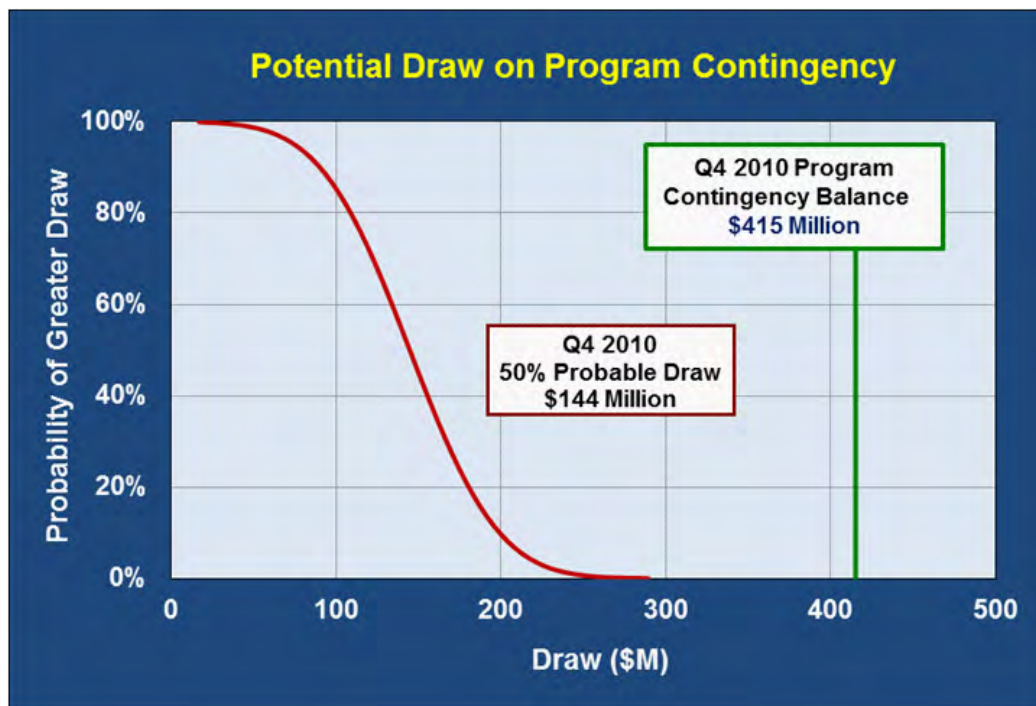
The current program contingency balance is sufficient to cover the cost of currently identified risks. Risk mitigation actions are continuously developed and implemented to reduce the potential draw on the program contingency.

## RISK MANAGEMENT DEVELOPMENTS

The risk management cost decreased by \$59 million from the previous quarter, primarily due to the decreases in risks of the SAS, Antioch and Dumbarton contracts, and in COS risks.

The SAS contractor submitted a new schedule that meets the accelerated schedule milestones provided in the contract change order executed between Caltrans and the SAS contractor in the third quarter of 2010. The schedule is very aggressive and there are risks to the future activities on the critical paths through Roadway Boxes (OBG) delivery and erection, cable installation, load transfer, and completion of Mechanical, Electrical, and Plumbing (MEP) systems required for the opening. Caltrans and the SAS contractor are implementing a plan to enhance mutual schedule management in order to proactively identify

impending risks so that action can be taken swiftly to prevent or mitigate potential delays. The risk management team has assessed the risks and identified Caltrans activities that must align with the SAS contractor's incentivized milestones. The project team, with approval of the TBPOC, began development of alternate detour alignments at the Oakland Touchdown end of the bridge. When opened to traffic, these alternate alignments of the eastbound and westbound directions will allow completion of the new eastbound structure and roadway prior to westbound bridge opening. The schedule for implementation of the OTD detour has been incorporated into the Corridor Schedule risk analysis this quarter. Consequently, the OTD 2 contract is effectively moved off the critical path to seismic safety and the risk to the bridge opening milestone has reduced considerably from the previous quarter.



**Figure 1 – Potential Draw on Program Contingency\***

\*Figure 1 Notes:

1. Potential out-of-scope program risks excluded.
2. Potential costs associated with OTD alternative alignment options, currently under TBPOC consideration, excluded.
3. Program contingency may be used for other beneficial purposes than to cover risks. The potential draw chart should not be construed as a forecast of the future balance of program contingency funds.



## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### Risk Management Program Update (cont.)

While the OTD detour has been incorporated into the Corridor Schedule, its potential costs are not included in Figure 1. During the fourth quarter of 2010, the risk management team analyzed the risks and uncertainties in the capital, right-of-way and COS estimates of the proposed OTD detour project. If approved by the TBPOC, the OTD detour project would increase the potential draw on program contingency. The OTD detour cost risk analysis results for the fourth quarter of 2010 indicate an 80 percent probability that such an increase in the potential draw on program contingency will range from \$68 million to \$78 million.

the TBPOC's goal of opening the bridge in 2013. The Cable Engineering Risk Management (CERM) team continues to identify and resolve outstanding cable installation issues. The CERM team has recommended several modifications that have resolved potential spatial conflicts and issues related to cable rotation during installation of the cable bands and suspenders.

When the TBPOC approves the OTD detour project, the risk management team will update the cost and schedule risk analyses with the aim to minimize the number of activities and risks that will be on the critical path to opening of the bridge.

### RISK MANAGEMENT LOOK AHEAD

An important aspect of the SAS schedule – and of all schedules for large projects – is that there may be multiple critical paths to the milestones. The most critical path to seismic safety opening contains the fabrication and erection of Lifts 13 and 14, and completion of the cable system and MEP systems required for seismic safety opening. Caltrans will be monitoring the critical paths and managing all corridor contract incentive and disincentive provisions to achieve



Hinge 'A' Floorbeams installed in Roadway Box 14 (East) at ZPMC in China



Temporary Tower Framing Structure Being Extended to Accommodate the Tower Lift Three Erection



## TOLL BRIDGE SEISMIC RETROFIT PROGRAM

### Program Funding Status

AB 144 established a funding level of \$8.685 billion for the TBSRP. The bill specifies program funding sources as shown in Table 1-Program Budget.

**Table 1—Program Budget  
as of December 31, 2010 (\$ Millions)**

	Budgeted	Funding Available & Contribution
<b>Financing</b>		
Seismic Surcharge Revenue AB 1171	2,282.0	2,282.0
Seismic Surcharge Revenue AB 144	2,150.0	2,150.0
Seismic Surcharge Revenue AB 1175 <sup>(5)</sup>	750.0	750.0
BATA Consolidation	820.0	820.0
<b>Subtotal - Financing</b>	<b>6,002.0</b>	<b>6,002.0</b>
<b>Contributions</b>		
Proposition 192	790.0	789.0
San Diego Coronado Toll Bridge Revenue Fund	33.0	33.0
Vincent Thomas Bridge	15.0	6.9
State Highway Account <sup>(1)(2)</sup>	745.0	745.0
Public Transportation Account <sup>(1)(3)</sup>	130.0	130.0
ITIP/SHOPP/Federal Contingency	448.0	100.0
Federal Highway Bridge Replacement and Rehabilitation (HBRR)	642.0	642.0
SHA - East Span Demolition	300.0	-
SHA - "Efficiency Savings" <sup>(4)</sup>	130.0	10.0
Redirect Spillover	125.0	125.0
Motor Vehicle Account	75.0	75.0
<b>Subtotal - Contribution</b>	<b>3,433.0</b>	<b>2,655.9</b>
<b>Total Funding</b>	<b>9,435.0</b>	<b>8,657.9</b>
<b>Encumbered to Date</b>		<b>7,987.5</b>
<b>Remaining Unallocated</b>		<b>670.4</b>
<b>Expenditures :</b>		
Capital Outlay		5,479.8
State Operations		1,430.8
Antioch and Dumbarton Expenditures by BATA		12.2
<b>Total Expenditures</b>		<b>6,922.8</b>
<b>Encumbrances : <sup>(6)</sup></b>		
Capital Outlay		1,042.0
State Operations		22.7
<b>Total Encumbrances</b>		<b>1,064.7</b>
<b>Total Expenditures and Encumbrances</b>		<b>7,987.5</b>

<sup>(1)</sup>The California Transportation Commission adopted a new schedule and changed the PTA/SHA split on December 15, 2005.

<sup>(2)</sup>To date \$645 million has been transferred from the SHA to the TBSRP, including the full \$290 million transfer scheduled by the CTC to occur in 2005-06. An additional \$100 million has been expended directly from the account.

<sup>(3)</sup>To date \$130 million has been transferred from the PTA to the TBSRP, including the full amount of all transfers scheduled by the CTC.

<sup>(4)</sup>To date \$10 million has been transferred from the SHA to the TBSRP, representing the commitment of "Efficiency Savings" identified under AB 144.

Approximately \$120 million remains to be distributed as scheduled by the CTC.

<sup>(5)</sup>As of January 1, 2010, seismic retrofitting of Antioch and Dumbarton Bridges became part of the Toll Bridge Seismic Retrofit Program with the passage of AB 1175.



## Summary of the Toll Bridge Oversight Committee (TBOC) Expenses

Pursuant to Streets and Highways Code Section 30952.1 (d), expenses incurred by Caltrans, BATA, and the California Transportation Commission (CTC) for costs directly related to the duties associated with the TBOC are to be reimbursed by toll revenues. Table 3 -Toll Bridge Program Oversight Committee Estimated Expenses: July 1, 2005 through December 31, 2010 shows expenses through December 30, 2010 for TBOC functioning, support, and monthly and quarterly reporting.

**Table 2—CTC Toll Bridge Seismic Retrofit Program Contributions Adopted December 2005**  
Schedule of Contributions to the Toll Bridge Seismic Retrofit Program (\$ Millions)

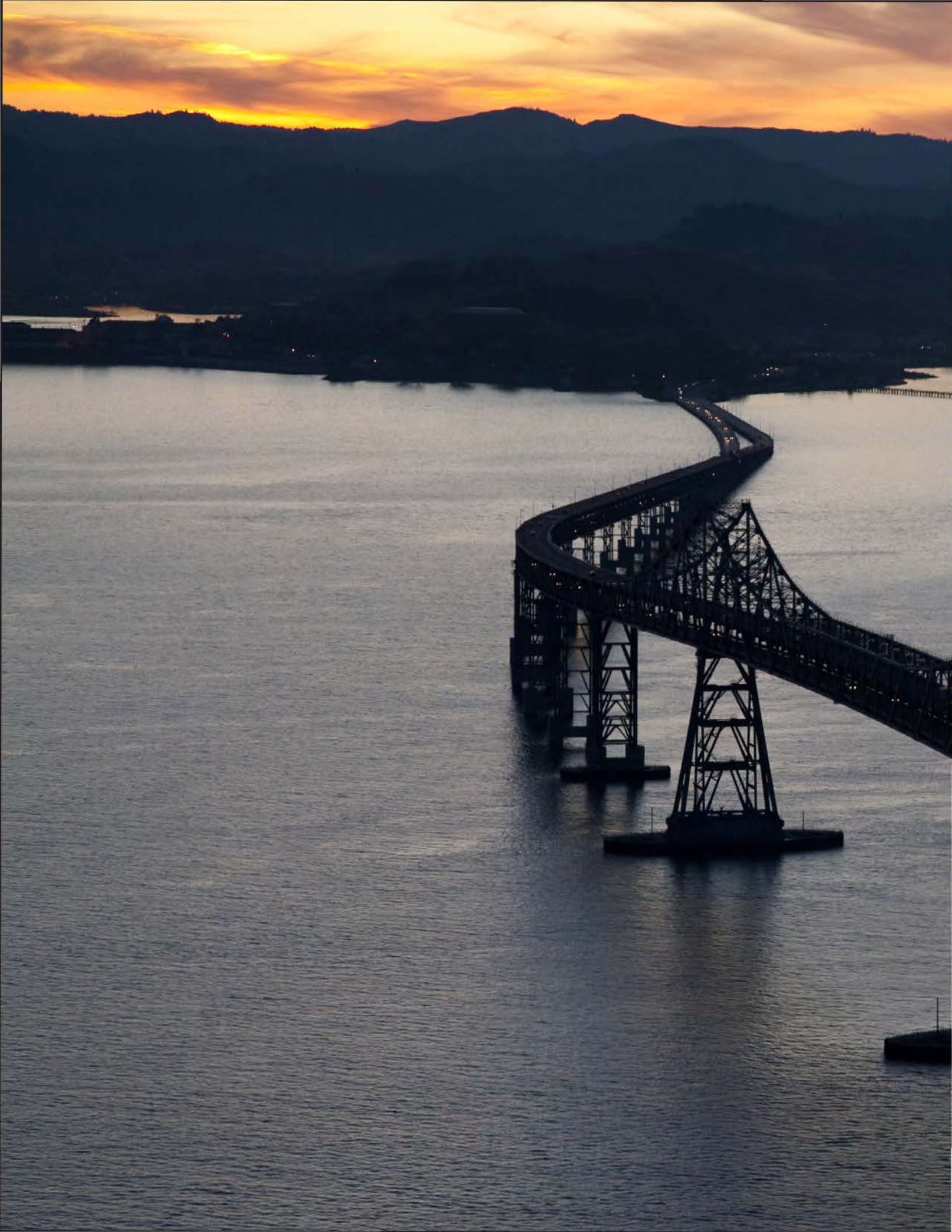
Source	Description	2005-06 (Actual)	2006-07 (Actual)	2007-08 (Actual)	2008-09 (Actual)	2009-10 (Actual)	2010-11 (Actual)	2011-12	2012-13	2013-14	Total
AB 1171	SHA	290									290
	PTA	80	40								120
	Highway Bridge Replacement and Rehabilitation (HBRR)	100	100	100	42						342
	Contingency				1	99	100	100	148		448
AB 144	SHA*	2	8				53	50	17		130
	Motor Vehicle Account (MVA)	75									75
	Spillover		125								125
	SHA**									300	300
	Total	547	273	100	43	99	153	150	165	300	1830

\* Caltrans Efficiency Savings

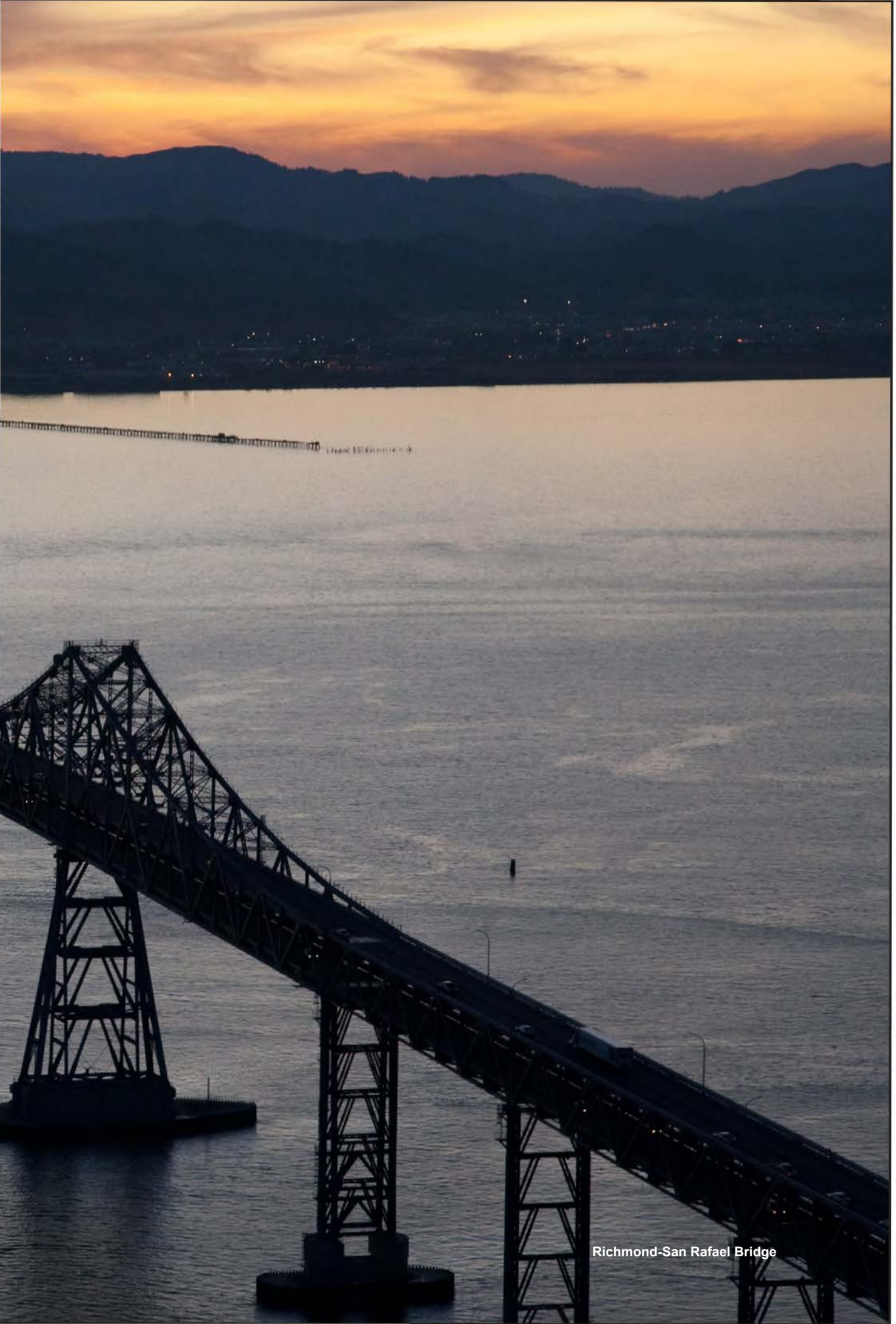
\*\* SFOBB East Span Demolition Cost

**Table 3—Toll Bridge Program Oversight Committee**  
Estimated Expenses: July 1, 2005 through December 31, 2010 (\$ Millions)

Agency/Program Activity	Expenses
BATA	1.0
Caltrans	2.1
CTC	1.5
Reporting	3.8
Total Program	8.4







Richmond-San Rafael Bridge

# REGIONAL MEASURE 1 TOLL BRIDGE PROGRAM



## REGIONAL MEASURE 1 PROGRAM

### Interstate 880/State Route 92 Interchange Reconstruction Project

**Project Status: In Construction**

The Interstate 880/State Route 92 Interchange Reconstruction Project is the final project under the Regional Measure 1 Toll Bridge Program. Project completion fulfills a promise made to Bay Area voters in 1988 to deliver a slate of projects that help expand bridge capacity and improve safety on the bridges.

### Interstate 880/State Route 92 Interchange Reconstruction Contract

Contractor: Flatiron/Granite

Approved Capital Outlay Budget: \$158.0 M

Status: 83% Complete as of December 2010

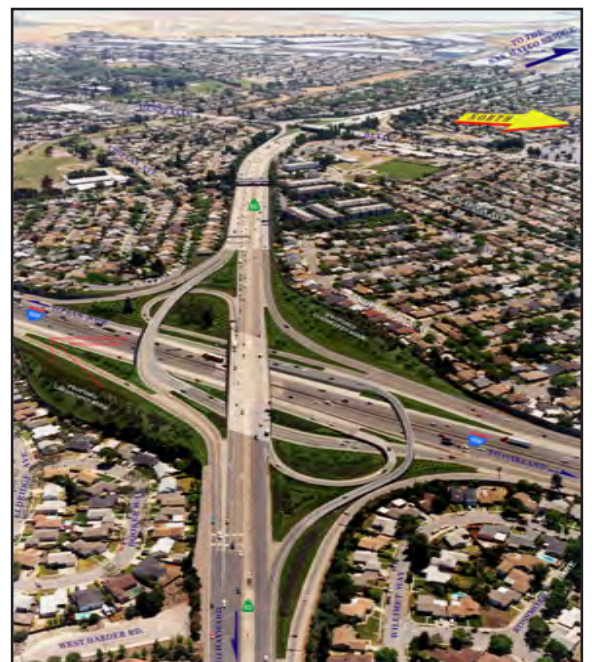
This corridor is consistently one of the Bay Area's most congested during the evening commute. This is due in part to the lane merging and weaving that is required by the existing cloverleaf interchange. The new interchange will feature direct freeway-to-freeway connector ramps that will increase traffic capacity and improve overall safety and traffic operations in the area. With the new direct-connector ramps, drivers coming off the San Mateo-Hayward Bridge can access Interstate 880 without having to compete with traffic headed onto east Route 92 from south Interstate 880 (see progress photos on pages 64 and 65).



Calaroga Bridge Work in Progress



Looking Southwest at the New NWCONN Bridge



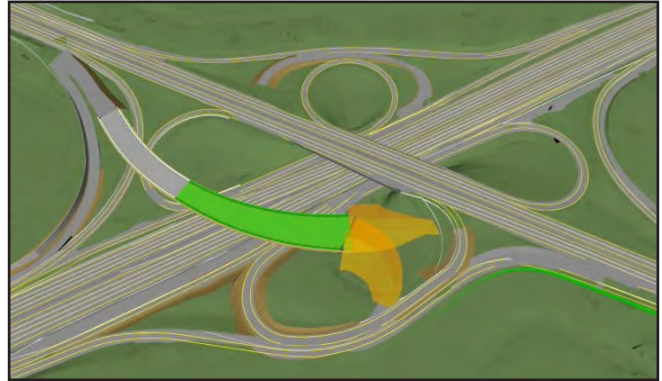
Future Interstate 880/State Route 92 Interchange (as simulated) Looking West toward San Mateo



### **Stage 1 – Construct East Route 92 to North Interstate 880 Connector**

The new east Route 92 to north Interstate 880 connector (ENCONN) is the most critical fly over structure for relieving congestion in the corridor. The ENCONN will be first used as a detour to allow for future stages of work, while keeping traffic flowing.

**Status:** ENCONN was completed and opened to detour traffic on May 16, 2009.

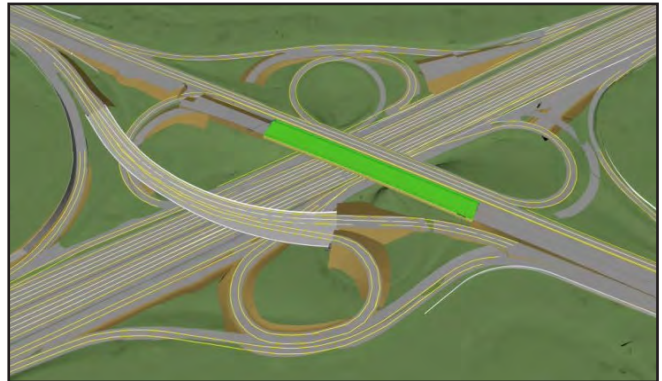


**Stage 1 - Construct East Route 92 to North Interstate 880 Direct Connector**

### **Stage 2 – Replace South Side of Route 92 Separation Structure**

By detouring eastbound Route 92 traffic onto ENCONN, the existing separation structure that carries SR92 over I-880 can be replaced. The existing structure will be cut lengthwise, and then demolished and replaced separately. In this stage, the south side of the structure will be replaced, while west Route 92 and south Interstate 880 to east Route 92 traffic will stay on the remaining structure.

**Status:** Work on the south side of the separation structure is complete.

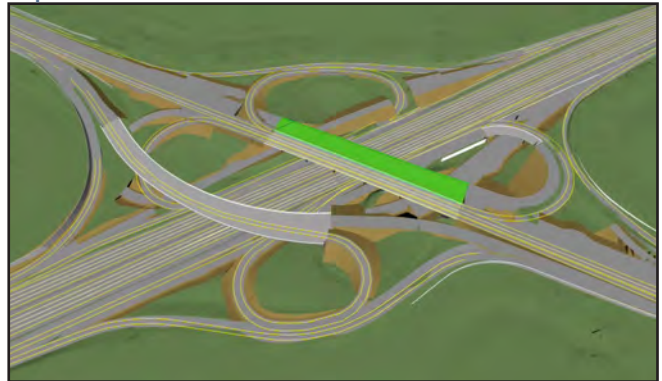


**Stage 2 - Demolish and Replace South Side of Route 92 Separation Structure**

### **Stage 3 – Replace North Side of Route 92 Separation Structure**

Upon completion of Stage 2, the existing north side of the separation structure will be demolished and replaced. Its traffic will then be shifted onto the newly reconstructed south side.

**Status:** The north side of the structure is scheduled to open to traffic in February, pending weather and construction progress.



**Stage 3 - Demolish and Replace North Side of Route 92 Separation Structure**

### **Stage 4 – Final Realignment and Other Work**

In addition to ENCONN and the separation structure, direct north 880 to west 92 connector (NWCONN) and west 92 to south 880 connector (WSCONN) remain to be completed. The new Eldridge Avenue pedestrian overcrossing is now complete.

**Status:** The NWCONN structure opened to traffic in October 2010. The WSCONN structure is scheduled to be fully opened in June 2011, and will follow soon after by the opening of the ENCONN structure in its final alignment in July 2011.



**Stage 4 - Final Realignment and Other Work**

## REGIONAL MEASURE 1 PROGRAM

### Other Completed Projects

#### San Mateo-Hayward Bridge-Widening Project

**Project Status: Completed 2003**

This project expanded the low-rise concrete trestle section of the San Mateo-Hayward Bridge to allow for three lanes in each direction to match the existing configuration of the high-rise steel section of the bridge.



Widening of the San Mateo-Hayward Bridge Trestle on Left

#### Richmond-San Rafael Bridge Rehabilitation Projects

**Project Status: Completed 2006**

Two major rehabilitation projects for the Richmond-San Rafael Bridge were funded and completed: (1) replacement of the western concrete approach trestle and ship-collision protection fender system; and (2) rehabilitation of deck joints and resurfacing of the bridge deck.

In 2005, along with the seismic retrofit of the bridge, the trestle and fender replacement work was completed as part of the same project. Under a separate contract in 2006, the bridge was resurfaced with a polyester concrete overlay along with the repair of numerous deck joints.



New Richmond-San Rafael Bridge West Approach Trestle under Construction

#### Richmond Parkway Construction Project

**Project Status: Completed 2001**

The final connections to the Richmond Parkway from Interstate 580 near the Richmond-San Rafael Bridge were completed in May 2001.



## New Alfred Zampa Memorial (Carquinez) Bridge Project

**Project Status: Completed 2003**



New Alfred Zampa Memorial (Carquinez) Bridge Soon after Opening to Traffic, with Crockett Interchange Still under Construction

The new western span of the Carquinez Bridge, which replaced the original 1927 span, is a twin-towered suspension bridge with three mixed-flow lanes, a new carpool lane shoulders and a bicycle and pedestrian pathway.

## Benicia-Martinez Bridge Project

**Project Status: Completed 2009**



Benicia-Martinez Bridge Pedestrian/Bicycle Pathway Opened to the Public in August 2009

A two-year project to rehabilitate and reconfigure the original Benicia-Martinez Bridge began shortly after the opening of the new Congressman George Miller Bridge. The existing 1.2-mile roadway surface on the steel deck truss bridge was modified to carry four lanes of southbound traffic (one more than before)—with shoulders on both sides—plus a bicycle/pedestrian path on the west side of the span that connects to Park Road in Benicia and to Marina Vista Boulevard in Martinez. Reconstruction of the east side of the bridge and approaches was completed in August 2008, and reconstruction of the west side of the bridge and approaches and construction of the bicycle/pedestrian pathway was completed in August 2009.

## Bayfront Expressway (State Route 84) Widening Project

**Project Status: Completed 2004**

This project expanded and improved the roadway from the Dumbarton Bridge touchdown to the US 101/Marsh Road interchange by adding additional lanes and turn pockets and improving bicycle and pedestrian access in the area.







## APPENDICES

A. TBSRP AB 144/SB 66 Baseline Budget, Forecasts and Expenditures through December 31, 2010 (A-1 and A-2).....	54
B. TBSRP (SFOBB East Span Only) AB 144/SB 66 Baseline Budget, Forecasts and Expenditures through December 31, 2010 .....	58
C. Regional Measure 1 Program Cost Detail.....	61
D. Project Progress Diagrams .....	66
E. Project Photos.....	68
F. Glossary of Terms.....	76



## Appendix A-1: TBSRP AB 144/SB 66 Baseline Budget, Forecasts and Expenditures through December 31, 2010 (\$ Millions)

Contract a	AB 144 / SB 66 Budget (07/2005) c	Approved Changes d	Current Approved Budget (12/2010) e = c + d	Cost to Date (12/2010) f	Cost Forecast (12/2010) g	At- Completion Variance h = g - e
<b>SFOBB East Span Replacement Project</b>						
Capital Outlay Support	959.3	203.0	1,162.3	912.1	1,269.2	106.9
Capital Outlay Construction	4,492.2	496.8	4,989.0	3,765.0	5,050.0	61.0
Other Budgeted Capital	35.1	(3.3)	31.8	0.7	7.7	(24.1)
<b>Total</b>	<b>5,486.6</b>	<b>696.5</b>	<b>6,183.1</b>	<b>4,677.8</b>	<b>6,326.9</b>	<b>143.8</b>
<b>SFOBB West Approach Replacement</b>						
Capital Outlay Support	120.0	(2.0)	118.0	117.9	118.5	0.5
Capital Outlay Construction	309.0	41.7	350.7	328.1	338.1	(12.6)
<b>Total</b>	<b>429.0</b>	<b>39.7</b>	<b>468.7</b>	<b>446.0</b>	<b>456.6</b>	<b>(12.1)</b>
<b>SFOBB West Span Retrofit</b>						
Capital Outlay Support	75.0	(0.2)	74.8	74.9	74.8	-
Capital Outlay Construction	232.9	(5.5)	227.4	227.4	227.4	-
<b>Total</b>	<b>307.9</b>	<b>(5.7)</b>	<b>302.2</b>	<b>302.3</b>	<b>302.2</b>	<b>-</b>
<b>Richmond-San Rafael Bridge Retrofit</b>						
Capital Outlay Support	134.0	(7.0)	127.0	126.8	127.0	-
Capital Outlay Construction	780.0	(90.5)	689.5	667.5	689.5	-
<b>Total</b>	<b>914.0</b>	<b>(97.5)</b>	<b>816.5</b>	<b>794.3</b>	<b>816.5</b>	<b>-</b>
<b>Benicia-Martinez Bridge Retrofit</b>						
Capital Outlay Support	38.1	-	38.1	38.1	38.1	-
Capital Outlay Construction	139.7	-	139.7	139.7	139.7	-
<b>Total</b>	<b>177.8</b>	<b>-</b>	<b>177.8</b>	<b>177.8</b>	<b>177.8</b>	<b>-</b>
<b>Carquinez Bridge Retrofit</b>						
Capital Outlay Support	28.7	0.1	28.8	28.8	28.8	-
Capital Outlay Construction	85.5	(0.1)	85.4	85.4	85.4	-
<b>Total</b>	<b>114.2</b>	<b>-</b>	<b>114.2</b>	<b>114.2</b>	<b>114.2</b>	<b>-</b>
<b>San Mateo-Hayward Retrofit</b>						
Capital Outlay Support	28.1	-	28.1	28.1	28.1	-
Capital Outlay Construction	135.4	(0.1)	135.3	135.3	135.3	-
<b>Total</b>	<b>163.5</b>	<b>(0.1)</b>	<b>163.4</b>	<b>163.4</b>	<b>163.4</b>	<b>-</b>
<b>Vincent Thomas Bridge Retrofit (Los Angeles)</b>						
Capital Outlay Support	16.4	-	16.4	16.4	16.4	-
Capital Outlay Construction	42.1	(0.1)	42.0	42.0	42.0	-
<b>Total</b>	<b>58.5</b>	<b>(0.1)</b>	<b>58.4</b>	<b>58.4</b>	<b>58.4</b>	<b>-</b>
<b>San Diego-Coronado Bridge Retrofit</b>						
Capital Outlay Support	33.5	(0.3)	33.2	33.2	33.2	-
Capital Outlay Construction	70.0	(0.6)	69.4	69.4	69.4	-
<b>Total</b>	<b>103.5</b>	<b>(0.9)</b>	<b>102.6</b>	<b>102.6</b>	<b>102.6</b>	<b>-</b>

## Appendix A-1: TBSRP AB 144/SB 66 Baseline Budget, Forecasts and Expenditures through December 31, 2010 (\$ Millions) Cont.

Contract	AB 144 / SB 66 Budget (07/2005)	Approved Changes	Current Approved Budget (12/2010)	Cost to Date (12 /2010)	Cost Forecast (12/2010)	At- Completion Variance
a	c	d	e = c + d	f	g	h = g - e
<b>Antioch Bridge</b>						
Capital Outlay Support	-	31.0	31.0	11.4	35.7	4.7
Capital Outlay Support by BATA				6.1		
Capital Outlay Construction	-	70.0	70.0	14.2	62.0	(8.0)
<b>Total</b>	<b>-</b>	<b>101.0</b>	<b>101.0</b>	<b>31.7</b>	<b>97.7</b>	<b>(3.3)</b>
<b>Dumbarton Bridge</b>						
Capital Outlay Support	-	56.0	56.0	17.6	55.7	(0.3)
Capital Outlay Support by BATA				6.0		
Capital Outlay Construction	-	92.7	92.7	5.2	96.8	4.1
<b>Total</b>	<b>-</b>	<b>148.7</b>	<b>148.7</b>	<b>28.8</b>	<b>152.5</b>	<b>3.8</b>
<b>Subtotal Capital Outlay Support</b>	<b>1,433.1</b>	<b>280.6</b>	<b>1,713.7</b>	<b>1,417.4</b>	<b>1,825.5</b>	<b>111.8</b>
<b>Subtotal Capital Outlay</b>	<b>6,286.8</b>	<b>604.3</b>	<b>6,891.1</b>	<b>5,479.2</b>	<b>6,935.6</b>	<b>44.5</b>
<b>Subtotal Other Budgeted Capital</b>	<b>35.1</b>	<b>(3.3)</b>	<b>31.8</b>	<b>0.7</b>	<b>7.7</b>	<b>(24.1)</b>
<b>Miscellaneous Program Costs</b>	<b>30.0</b>	<b>-</b>	<b>30.0</b>	<b>25.5</b>	<b>30.0</b>	<b>-</b>
<b>Subtotal Toll Bridge Seismic Retrofit Program</b>	<b>7,785.0</b>	<b>881.6</b>	<b>8,666.6</b>	<b>6,922.8</b>	<b>8,798.8</b>	<b>132.2</b>
<b>Net Programmatic Risks*</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>11.8</b>	<b>11.8</b>
<b>Program Contingency</b>	<b>900.0</b>	<b>(484.6)</b>	<b>415.4</b>	<b>-</b>	<b>271.4</b>	<b>(144.0)</b>
<b>Total Toll Bridge Seismic Retrofit Program <sup>1</sup></b>	<b>8,685.0</b>	<b>397.0</b>	<b>9,082.0</b>	<b>6,922.8</b>	<b>9,082.0</b>	<b>-</b>

<sup>1</sup> Figures may not sum up to totals due to rounding effects.

## Appendix A-2: TBSRP AB 144/SB 66 Baseline Budget, Forecasts and Expenditures through December 31, 2010 (\$ Millions)

Bridge	AB 144 Baseline Budget	TBPOC Current Approved Budget	Expenditures to date and Encumbrances as of December 2010 see Note (1)	not yet spent or Encumbered as of December 2010	Total Forecast as of December 2010
a	b	c	d	e	f = d + e
<b>Other Completed Projects</b>					
Capital Outlay Support	144.9	144.6	144.6	-	144.6
Capital Outlay	472.6	471.9	472.6	(0.8)	471.8
<b>Total</b>	<b>617.5</b>	<b>616.5</b>	<b>617.2</b>	<b>(0.8)</b>	<b>616.4</b>
<b>Richmond-San Rafael</b>					
Capital Outlay Support	134.0	127.0	126.8	0.2	127.0
Capital Outlay	698.0	689.5	674.1	15.4	689.5
Project Reserves	82.0	-	-	-	-
<b>Total</b>	<b>914.0</b>	<b>816.5</b>	<b>800.9</b>	<b>15.6</b>	<b>816.5</b>
<b>West Span Retrofit</b>					
Capital Outlay Support	75.0	74.8	74.9	(0.1)	74.8
Capital Outlay	232.9	227.4	232.9	(5.5)	227.4
<b>Total</b>	<b>307.9</b>	<b>302.2</b>	<b>307.8</b>	<b>(5.6)</b>	<b>302.2</b>
<b>West Approach</b>					
Capital Outlay Support	120.0	118.0	118.2	0.3	118.5
Capital Outlay	309.0	350.7	345.3	(7.2)	338.1
<b>Total</b>	<b>429.0</b>	<b>468.7</b>	<b>463.5</b>	<b>(6.9)</b>	<b>456.6</b>
<b>SFOBB East Span - Skyway</b>					
Capital Outlay Support	197.0	181.2	181.4	(0.2)	181.2
Capital Outlay	1,293.0	1,254.1	1,368.3	(114.2)	1,254.1
<b>Total</b>	<b>1,490.0</b>	<b>1,435.3</b>	<b>1,549.7</b>	<b>(114.4)</b>	<b>1,435.3</b>
<b>SFOBB East Span - SAS - Superstructure</b>					
Capital Outlay Support	214.6	375.5	286.4	177.6	464.0
Capital Outlay	1,753.7	2,046.8	2,045.7	29.0	2,074.7
<b>Total</b>	<b>1,968.3</b>	<b>2,422.3</b>	<b>2,332.1</b>	<b>206.6</b>	<b>2,538.7</b>
<b>SFOBB East Span - SAS - Foundations</b>					
Capital Outlay Support	62.5	37.6	37.6	-	37.6
Capital Outlay	339.9	307.3	309.3	(2.0)	307.3
<b>Total</b>	<b>402.4</b>	<b>344.9</b>	<b>346.9</b>	<b>(2.0)</b>	<b>344.9</b>
<b>Small YBI Projects</b>					
Capital Outlay Support	10.6	10.6	10.2	0.4	10.6
Capital Outlay	15.6	15.6	15.5	0.2	15.7
<b>Total</b>	<b>26.2</b>	<b>26.2</b>	<b>25.7</b>	<b>0.6</b>	<b>26.3</b>
<b>YBI Detour</b>					
Capital Outlay Support	29.5	90.7	86.7	3.5	90.2
Capital Outlay	131.9	492.8	494.1	(5.3)	488.8
<b>Total</b>	<b>161.4</b>	<b>583.5</b>	<b>580.8</b>	<b>(1.8)</b>	<b>579.0</b>
<b>YBI- Transition Structures</b>					
Capital Outlay Support	78.7	106.4	40.8	73.5	114.3
Capital Outlay	299.4	206.3	126.9	126.2	253.1
<b>Total</b>	<b>378.1</b>	<b>312.7</b>	<b>167.7</b>	<b>199.7</b>	<b>367.4</b>



## Appendix A-2: TBSRP AB 144/SB 66 Baseline Budget, Forecasts and Expenditures through December 31, 2010 (\$ Millions) Cont.

Contract	AB 144 Baseline Budget	TBPOC Current Approved Budget	Expenditures to date and Encumbrances as of December 2010 see Note (1)	Estimated Costs not yet spent or Encumbered as of December 2010	Total Forecast as of December 2010
a	b	c	d	e	f = d + e
<b>Oakland Touchdown</b>					
Capital Outlay Support	74.4	93.9	84.0	19.3	103.3
Capital Outlay	283.8	288.0	217.3	67.0	284.3
<b>Total</b>	<b>358.2</b>	<b>381.9</b>	<b>301.3</b>	<b>86.3</b>	<b>387.6</b>
<b>East Span Other Small Projects</b>					
Capital Outlay Support	212.3	206.5	206.8	(0.2)	206.6
Capital Outlay	170.8	170.8	117.6	29.0	146.6
<b>Total</b>	<b>383.1</b>	<b>377.3</b>	<b>324.4</b>	<b>28.8</b>	<b>353.2</b>
<b>Existing Bridge Demolition</b>					
Capital Outlay Support	79.7	59.9	0.4	61.0	61.4
Capital Outlay	239.2	239.1	-	233.0	233.0
<b>Total</b>	<b>318.9</b>	<b>299.0</b>	<b>0.4</b>	<b>294.0</b>	<b>294.4</b>
<b>Antioch Bridge</b>					
Capital Outlay Support	-	31.0	11.5	18.0	29.5
Capital Outlay Support by BATA			<b>6.2</b>	<b>-</b>	<b>6.2</b>
Capital Outlay	-	70.0	47.0	15.0	62.0
<b>Total</b>	<b>-</b>	<b>101.0</b>	<b>64.7</b>	<b>33.0</b>	<b>97.7</b>
<b>Dumbarton Bridge</b>					
Capital Outlay Support	-	56.0	17.7	32.0	49.7
Capital Outlay Support by BATA			6.0	-	6.0
Capital Outlay	-	92.7	55.2	41.6	96.8
<b>Total</b>	<b>-</b>	<b>148.7</b>	<b>78.9</b>	<b>73.6</b>	<b>152.5</b>
<b>Miscellaneous Program Costs</b>	<b>30.0</b>	<b>30.0</b>	<b>25.5</b>	<b>4.5</b>	<b>30.0</b>
<b>Total Capital Outlay Support</b>	<b>1,463.2</b>	<b>1,743.7</b>	<b>1,465.7</b>	<b>389.8</b>	<b>1,855.5</b>
<b>Total Capital Outlay</b>	<b>6,321.8</b>	<b>6,923.0</b>	<b>6,521.8</b>	<b>421.5</b>	<b>6,943.3</b>
<b>Program Total <sup>1</sup></b>	<b>7,785.0</b>	<b>8,666.7</b>	<b>7,987.5</b>	<b>811.3</b>	<b>8,798.8</b>

(1). Funds allocated to project or contract for Capital Outlay and Support needs includes Capital Outlay Support total allocation for FY 06/07.

(2). BSA provided a distribution of program contingency in December 2004 based in Bechtel Infrastructure Corporation input.

This Column is subject to revision upon completion of Department's risk assessment update.

(3) Total Capital Outlay Support includes program indirect costs.

<sup>1</sup> Figures may not sum up to totals due to rounding effects.

## Appendix B: TBSRP (SFOBB East Span Only) AB 144/SB 66 Baseline Budget, Forecasts and Expenditures through December 31, 2010 (\$ Millions)

Contract a	AB 144 / SB 66 Budget (07/2005) c	Approved Changes d	Current Approved Budget (12/2010) e = c + d	Cost to Date (12/2010) f	Cost Forecast (12/2010) g	At- Completion Variance h = g - e
<b>San Francisco-Oakland Bay Bridge East Span Replacement Project</b>						
<b>East Span - SAS Superstructure</b>						
Capital Outlay Support	214.6	160.9	375.5	279.6	464.0	88.5
Capital Outlay Construction	1,753.7	293.1	2,046.8	1,401.4	2,074.7	27.9
<b>Total</b>	<b>1,968.3</b>	<b>454.0</b>	<b>2,422.3</b>	<b>1,681.0</b>	<b>2,538.7</b>	<b>116.4</b>
<b>SAS W2 Foundations</b>						
Capital Outlay Support	10.0	(0.8)	9.2	9.2	9.2	-
Capital Outlay Construction	26.4	-	26.4	26.5	26.4	-
<b>Total</b>	<b>36.4</b>	<b>(0.8)</b>	<b>35.6</b>	<b>35.7</b>	<b>35.6</b>	<b>-</b>
<b>YBI South/South Detour</b>						
Capital Outlay Support	29.4	61.3	90.7	85.9	90.2	(0.5)
Capital Outlay Construction	131.9	360.9	492.8	466.3	488.8	(4.0)
<b>Total</b>	<b>161.3</b>	<b>422.2</b>	<b>583.5</b>	<b>552.2</b>	<b>579.0</b>	<b>(4.5)</b>
<b>East Span - Skyway</b>						
Capital Outlay Support	197.0	(15.8)	181.2	181.2	181.2	-
Capital Outlay Construction	1,293.0	(38.9)	1,254.1	1,236.9	1,254.1	-
<b>Total</b>	<b>1,490.0</b>	<b>(54.7)</b>	<b>1,435.3</b>	<b>1,418.1</b>	<b>1,435.3</b>	<b>-</b>
<b>East Span - SAS E2/T1 Foundations</b>						
Capital Outlay Support	52.5	(24.1)	28.4	28.4	28.4	-
Capital Outlay Construction	313.5	(32.6)	280.9	274.8	280.9	-
<b>Total</b>	<b>366.0</b>	<b>(56.7)</b>	<b>309.3</b>	<b>303.2</b>	<b>309.3</b>	<b>-</b>
<b>YBI Transition Structures (see notes below)</b>						
Capital Outlay Support	78.7	27.7	106.4	39.3	114.3	7.9
Capital Outlay Construction	299.3	(93.0)	206.3	18.1	253.1	46.8
<b>Total</b>	<b>378.0</b>	<b>(65.3)</b>	<b>312.7</b>	<b>57.4</b>	<b>367.4</b>	<b>54.7</b>
<b>* YBI- Transition Structures</b>						
Capital Outlay Support			16.4	16.4	16.5	0.1
Capital Outlay Construction			-	-	-	-
<b>Total</b>			<b>16.4</b>	<b>16.4</b>	<b>16.5</b>	<b>0.1</b>
<b>* YBI- Transition Structures Contract No. 1</b>						
Capital Outlay Support			57.0	16.6	64.6	7.6
Capital Outlay Construction			144.0	18.1	185.4	41.4
<b>Total</b>			<b>201.0</b>	<b>34.7</b>	<b>250.0</b>	<b>49.0</b>
<b>* YBI- Transition Structures Contract No. 2</b>						
Capital Outlay Support			32.0	6.4	32.2	0.2
Capital Outlay Construction			59.0	-	64.4	5.4
<b>Total</b>			<b>91.0</b>	<b>6.4</b>	<b>96.6</b>	<b>5.6</b>
<b>* YBI- Transition Structures Contract No. 3 Landscape</b>						
Capital Outlay Support			1.0	-	1.0	-
Capital Outlay Construction			3.3	-	3.3	-
<b>Total</b>			<b>4.3</b>	<b>-</b>	<b>4.3</b>	<b>-</b>

## Appendix B: TBSRP (SFOBB East Span Only) AB 144/SB 66 Baseline Budget, Forecasts and Expenditures through December 31, 2010 (\$ Millions) Cont.

Contract	AB 144 / SB 66 Budget (07/2005)	Approved Changes	Current Approved Budget (12/2010)	Cost to Date (12/2010)	Cost Forecast (12/2010)	At-Completion Variance
a	c	d	e = c + d	f	g	h = g - e
<b>Oakland Touchdown (see notes below)</b>						
Capital Outlay Support	74.4	19.5	93.9	80.1	103.3	9.4
Capital Outlay Construction	283.8	4.2	288.0	209.6	284.3	(3.7)
<b>Total</b>	<b>358.2</b>	<b>23.7</b>	<b>381.9</b>	<b>289.7</b>	<b>387.6</b>	<b>5.7</b>
<b>*OTD Prior-to-Split Costs</b>						
Capital Outlay Support			21.7	20.1	21.7	-
Capital Outlay Construction			-	-	-	-
<b>Total</b>			<b>21.7</b>	<b>20.1</b>	<b>21.7</b>	<b>-</b>
<b>*OTD Submarine Cable</b>						
Capital Outlay Support			0.9	0.9	0.9	-
Capital Outlay Construction			9.6	7.9	9.6	-
<b>Total</b>			<b>10.5</b>	<b>8.8</b>	<b>10.5</b>	<b>-</b>
<b>*OTD No.1 (Westbound)</b>						
Capital Outlay Support			47.3	49.5	50.5	3.2
Capital Outlay Construction			212.0	201.7	204.4	(7.6)
<b>Total</b>			<b>259.3</b>	<b>251.2</b>	<b>254.9</b>	<b>(4.4)</b>
<b>*OTD No.2 (Eastbound)</b>						
Capital Outlay Support			22.5	8.9	28.7	6.2
Capital Outlay Construction			62.0	-	65.9	3.9
<b>Total</b>			<b>84.5</b>	<b>8.9</b>	<b>94.6</b>	<b>10.1</b>
<b>*OTD Electrical Systems</b>						
Capital Outlay Support			1.5	0.8	1.5	-
Capital Outlay Construction			4.4	-	4.4	-
<b>Total</b>			<b>5.9</b>	<b>0.8</b>	<b>5.9</b>	<b>-</b>
<b>Existing Bridge Demolition</b>						
Capital Outlay Support	79.7	(19.8)	59.9	0.4	61.4	1.5
Capital Outlay Construction	239.2	(0.1)	239.1	-	233.0	(6.1)
<b>Total</b>	<b>318.9</b>	<b>(19.9)</b>	<b>299.0</b>	<b>0.4</b>	<b>294.4</b>	<b>(4.6)</b>
<b>YBI/SAS Archeology</b>						
Capital Outlay Support	1.1	-	1.1	1.1	1.1	-
Capital Outlay Construction	1.1	-	1.1	1.1	1.1	-
<b>Total</b>	<b>2.2</b>	<b>-</b>	<b>2.2</b>	<b>2.2</b>	<b>2.2</b>	<b>-</b>
<b>YBI - USCG Road Relations</b>						
Capital Outlay Support	3.0	-	3.0	2.7	3.0	-
Capital Outlay Construction	3.0	-	3.0	2.8	3.0	-
<b>Total</b>	<b>6.0</b>	<b>-</b>	<b>6.0</b>	<b>5.5</b>	<b>6.0</b>	<b>-</b>
<b>YBI - Substation and Viaduct</b>						
Capital Outlay Support	6.5	-	6.5	6.4	6.5	-
Capital Outlay Construction	11.6	-	11.6	11.3	11.6	-
<b>Total</b>	<b>18.1</b>	<b>-</b>	<b>18.1</b>	<b>17.7</b>	<b>18.1</b>	<b>-</b>
<b>Oakland Geofill</b>						
Capital Outlay Support	2.5	-	2.5	2.5	2.5	-
Capital Outlay Construction	8.2	-	8.2	8.2	8.2	-
<b>Total</b>	<b>10.7</b>	<b>-</b>	<b>10.7</b>	<b>10.7</b>	<b>10.7</b>	<b>-</b>



## Appendix B: TBSRP (SFOBB East Span Only) AB 144/SB 66 Baseline Budget, Forecasts and Expenditures through December 31, 2010 (\$ Millions) Cont.

Contract	AB 144 / SB 66 Budget (07/2005)	Approved Changes	Current Approved Budget (12/2010)	Cost to Date (12/2010)	Cost Forecast (12/2010)	At-Completion Variance
a	c	d	e = c + d	f	g	h = g - e
<b>Pile Installation Demonstration Project</b>						
Capital Outlay Support	1.8	-	1.8	1.8	1.8	-
Capital Outlay Construction	9.3	(0.1)	9.2	9.2	9.3	-
<b>Total</b>	<b>11.1</b>	<b>(0.1)</b>	<b>11.0</b>	<b>11.0</b>	<b>11.1</b>	<b>-</b>
<b>Stormwater Treatment Measures</b>						
Capital Outlay Support	6.0	2.2	8.2	8.1	8.2	-
Capital Outlay Construction	15.0	3.3	18.3	16.7	18.3	-
<b>Total</b>	<b>21.0</b>	<b>5.5</b>	<b>26.5</b>	<b>24.8</b>	<b>26.5</b>	<b>-</b>
<b>Right-of-Way and Environmental Mitigation</b>						
Capital Outlay Support	-	-	-	-	-	-
Capital Outlay & Right-of-Way	72.4	-	72.4	51.3	72.4	-
<b>Total</b>	<b>72.4</b>	<b>-</b>	<b>72.4</b>	<b>51.3</b>	<b>72.4</b>	<b>-</b>
<b>Sunk Cost - Existing East Span Retrofit</b>						
Capital Outlay Support	39.5	-	39.5	39.5	39.5	-
Capital Outlay Construction	30.8	-	30.8	30.8	30.8	-
<b>Total</b>	<b>70.3</b>	<b>-</b>	<b>70.3</b>	<b>70.3</b>	<b>70.3</b>	<b>-</b>
<b>Other Capital Outlay Support</b>						
Environmental Phase	97.7	-	97.7	97.8	97.7	-
Pre-Split Project Expenditures	44.9	-	44.9	44.9	44.9	-
Non-project Specific Costs	20.0	(8.0)	12.0	3.2	12.0	-
<b>Total</b>	<b>162.6</b>	<b>(8.0)</b>	<b>154.6</b>	<b>145.9</b>	<b>154.6</b>	<b>-</b>
<b>Subtotal Capital Outlay Support</b>	<b>959.3</b>	<b>203.0</b>	<b>1,162.3</b>	<b>912.1</b>	<b>1,269.2</b>	<b>106.9</b>
<b>Subtotal Capital Outlay Construction</b>	<b>4,492.2</b>	<b>496.8</b>	<b>4,989.0</b>	<b>3,765.0</b>	<b>5,050.0</b>	<b>61.0</b>
<b>Other Budgeted Capital</b>	<b>35.1</b>	<b>(3.3)</b>	<b>31.8</b>	<b>0.7</b>	<b>7.7</b>	<b>(24.1)</b>
						<b>-</b>
<b>Total SFOBB East Span Replacement Project <sup>1</sup></b>	<b>5,486.6</b>	<b>696.5</b>	<b>6,183.1</b>	<b>4,677.8</b>	<b>6,326.9</b>	<b>143.8</b>

<sup>1</sup> Figures may not sum up to totals due to rounding effects.

## Appendix C: Regional Measure 1 Program Cost Detail (\$ Millions)

Contract	AB 144 / SB 66 Budget (07/2005)	Approved Changes	Current Approved Budget (12/2010)	Cost to Date (12/2010)	Cost Forecast (12/2010)	At- Completion Variance
a	c	d	e = c + d	f	g	h = g - e
<b>New Benicia-Martinez Bridge Project</b>						
<b>New Bridge</b>						
Capital Outlay Support						
BATA Funding	84.9	6.9	91.8	91.9	91.9	0.1
Non-Bata Funding	-	0.1	0.1	0.1	0.1	-
Subtotal	84.9	7.0	91.9	92.0	92.0	0.1
Capital Outlay Construction						
BATA Funding	661.9	94.6	756.5	753.8	756.5	-
Non-Bata Funding	10.1	-	10.1	10.1	10.1	-
Subtotal	672.0	94.6	766.6	763.9	766.6	-
<b>Total</b>	<b>756.9</b>	<b>101.6</b>	<b>858.5</b>	<b>855.9</b>	<b>858.6</b>	<b>0.1</b>
<b>I-680/I-780 Interchange Reconstruction</b>						
Capital Outlay Support						
BATA Funding	24.9	5.2	30.1	30.1	30.1	-
Non-Bata Funding	1.4	5.2	6.6	6.3	6.6	-
Subtotal	26.3	10.4	36.7	36.4	36.7	-
Capital Outlay Construction						
BATA Funding	54.7	26.9	81.6	77.1	81.6	-
Non-Bata Funding	21.6	-	21.6	21.7	21.7	0.1
Subtotal	76.3	26.9	103.2	98.8	103.3	0.1
<b>Total</b>	<b>102.6</b>	<b>37.3</b>	<b>139.9</b>	<b>135.2</b>	<b>140.0</b>	<b>0.1</b>
<b>I-680/Marina Vista Interchange Reconstruction</b>						
Capital Outlay Support	18.3	1.8	20.1	20.2	20.2	0.1
Capital Outlay Construction	51.5	4.9	56.4	56.1	56.4	-
<b>Total</b>	<b>69.8</b>	<b>6.7</b>	<b>76.5</b>	<b>76.3</b>	<b>76.6</b>	<b>0.1</b>
<b>New Toll Plaza and Administration Building</b>						
Capital Outlay Support	11.9	3.8	15.7	15.7	15.7	-
Capital Outlay Construction	24.3	2.0	26.3	25.1	26.3	-
<b>Total</b>	<b>36.2</b>	<b>5.8</b>	<b>42.0</b>	<b>40.8</b>	<b>42.0</b>	<b>-</b>
<b>Existing Bridge &amp; Interchange Modifications</b>						
Capital Outlay Support						
BATA Funding	4.3	13.5	17.8	17.9	17.9	0.1
Non-Bata Funding	-	0.9	0.9	0.8	0.9	-
Subtotal	4.3	14.4	18.7	18.7	18.8	0.1
Capital Outlay Construction						
BATA Funding	17.2	32.8	50.0	37.2	50.0	-
Non-Bata Funding	-	9.5	9.5	-	9.5	-
Subtotal	17.2	42.3	59.5	37.2	59.5	-
<b>Total</b>	<b>21.5</b>	<b>56.7</b>	<b>78.2</b>	<b>55.9</b>	<b>78.3</b>	<b>0.1</b>
<b>Other Contracts</b>						
Capital Outlay Support	11.4	(2.3)	9.1	9.2	9.2	0.1
Capital Outlay Construction	20.3	3.3	23.6	18.4	23.6	-
Capital Outlay Right-of-Way	20.4	(0.1)	20.3	17.0	20.3	-
<b>Total</b>	<b>52.1</b>	<b>0.9</b>	<b>53.0</b>	<b>44.6</b>	<b>53.1</b>	<b>0.1</b>

## Appendix C: Regional Measure 1 Program Cost Detail (\$ Millions) Cont.

Contract	AB 144 / SB 66 Budget (07/2005)	Approved Changes	Current Approved Budget (12/2010)	Cost to Date (12/2010)	Cost Forecast (12/2010)	At- Completion Variance
a	c	d	e = c + d	f	g	h = g - e
New Benicia-Martinez Bridge Project continued...						
Subtotal BATA Capital Outlay Support	155.7	28.9	184.6	185.0	185.0	0.4
Subtotal BATA Capital Outlay Construction	829.9	164.5	994.4	967.7	994.4	-
Subtotal Capital Outlay Right-of-Way	20.4	(0.1)	20.3	17.0	20.3	-
Subtotal Non-BATA Capital Outlay Support	1.4	6.2	7.6	7.2	7.6	-
Subtotal Non-BATA Capital Outlay Construction	31.7	9.5	41.2	31.8	41.3	0.1
Project Reserves	20.8	3.6	24.4	-	23.9	(0.5)
Total New Benicia-Martinez Bridge Project						
	1,059.9	212.6	1,272.5	1,208.7	1,272.5	-
Notes:	Includes EA's 00601_,00603_,00605_,00606_,00608_,00609_,0060A_,0060C_,0060E_,0060F_,0060G_,0060H_, and all Project Right-of-Way					
Carquinez Bridge Replacement Project						
New Bridge						
Capital Outlay Support	60.5	(0.3)	60.2	60.2	60.2	-
Capital Outlay Construction	253.3	2.7	256.0	255.9	256.0	-
Total	313.8	2.4	316.2	316.1	316.2	-
Crockett Interchange Reconstruction						
Capital Outlay Support	32.0	(0.1)	31.9	31.9	31.9	-
Capital Outlay Construction	73.9	(1.9)	72.0	71.9	72.0	-
Total	105.9	(2.0)	103.9	103.8	103.9	-
Existing 1927 Bridge Demolition						
Capital Outlay Support	16.1	(0.5)	15.6	15.7	15.7	0.1
Capital Outlay Construction	35.2	-	35.2	34.8	35.2	-
Total	51.3	(0.5)	50.8	50.5	50.9	0.1
Other Contracts						
Capital Outlay Support	15.8	1.2	17.0	16.4	17.0	-
Capital Outlay Construction	18.8	(1.2)	17.6	16.3	17.6	-
Capital Outlay Right-of-Way	10.5	(0.1)	10.4	9.9	10.4	-
Total	45.1	(0.1)	45.0	42.6	45.0	-
Subtotal BATA Capital Outlay Support						
	124.4	0.3	124.7	124.2	124.8	0.1
Subtotal BATA Capital Outlay Construction	381.2	(0.4)	380.8	378.9	380.8	-
Subtotal Capital Outlay Right-of-Way	10.5	(0.1)	10.4	9.9	10.4	-
Project Reserves	12.1	(9.8)	2.3	-	2.2	(0.1)
Total Carquinez Bridge Replacement Project <sup>1</sup>						
	528.2	(10.0)	518.2	513.0	518.2	-
Notes	Other Contracts include EA's 01301_,01302_,01303_,01304_,01305_,01306_,01307_,01308_,01309_,0130A_,0130C_,0130D_,0130F_,0130G_,0130H_,0130J_,00453_,00493_,04700_,00607_,2A270_,and 29920_ and all Project Right-of-Way					

<sup>1</sup> Figures may not sum up to totals due to rounding effects.

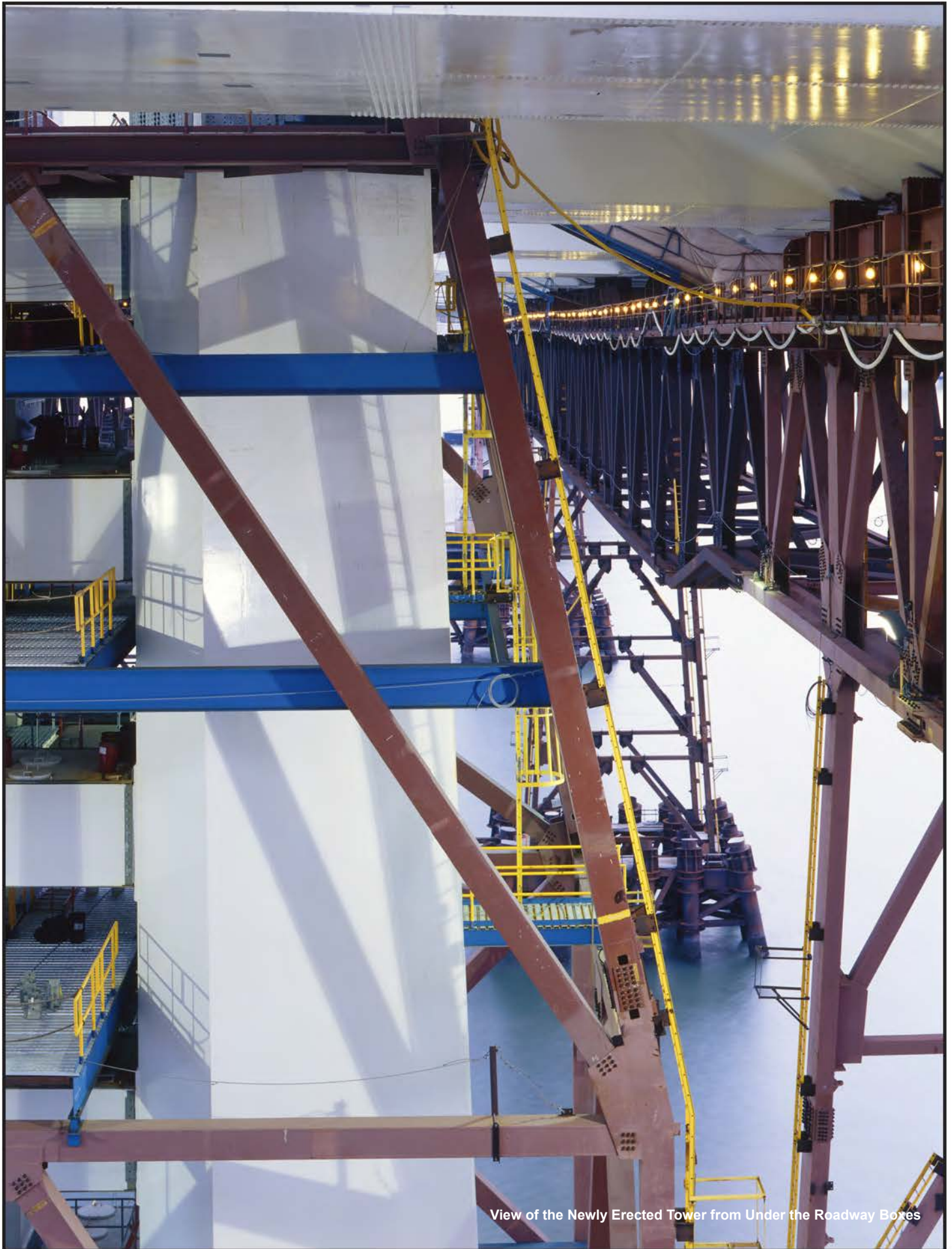


## Appendix C: Regional Measure 1 Program Cost Detail (\$ Millions) Cont.

Contract	AB 144 / SB 66 Budget (07/2005)	Approved Changes	Current Approved Budget (12/2010)	Cost to Date (12/2010)	Cost Forecast (12/2010)	At- Completion Variance
a	c	d	e = c + d	f	g	h = g - e
<b>Richmond-San Rafael Bridge Trestle. Fender, and Deck Joint Rehabilitation</b>						
Capital Outlay Support						
BATA Funding	2.2	(0.8)	1.4	1.4	1.4	-
Non-BATA Funding	8.6	1.8	10.4	10.4	10.4	-
Subtotal	10.8	1.0	11.8	11.8	11.8	-
Capital Outlay Construction						
BATA Funding	40.2	(6.8)	33.4	33.3	33.4	-
Non-BATA Funding	51.1	-	51.1	51.1	51.1	-
Subtotal	91.3	(6.8)	84.5	84.4	84.5	-
Project Reserves	-	0.8	0.8	-	0.8	-
<b>Total</b>	<b>102.1</b>	<b>(5.0)</b>	<b>97.1</b>	<b>96.2</b>	<b>97.1</b>	<b>-</b>
<b>Richmond-San Rafael Bridge Deck Overlay Rehabilitation</b>						
Capital Outlay Support						
BATA Funding	4.0	(0.7)	3.3	3.3	3.3	-
Non-BATA Funding	4.0	(4.0)	-	-	-	-
Subtotal	8.0	(4.7)	3.3	3.3	3.3	-
Capital Outlay Construction	16.9	(0.6)	16.3	16.3	16.3	-
Project Reserves	0.1	0.3	0.4	-	0.4	-
<b>Total</b>	<b>25.0</b>	<b>(5.0)</b>	<b>20.0</b>	<b>19.6</b>	<b>20.0</b>	<b>-</b>
<b>Richmond Parkway Project (RM 1 Share Only)</b>						
Capital Outlay Support	-	-	-	-	-	-
Capital Outlay Construction	5.9	-	5.9	4.3	5.9	-
<b>Total</b>	<b>5.9</b>	<b>-</b>	<b>5.9</b>	<b>4.3</b>	<b>5.9</b>	<b>-</b>
<b>San Mateo-Hayward Bridge Widening</b>						
Capital Outlay Support	34.6	(0.5)	34.1	34.1	34.1	-
Capital Outlay Construction	180.2	(6.1)	174.1	174.1	174.1	-
Capital Outlay Right-of-Way	1.5	(0.9)	0.6	0.5	0.6	-
Project Reserves	1.5	(0.5)	1.0	-	1.0	-
<b>Total</b>	<b>217.8</b>	<b>(8.0)</b>	<b>209.8</b>	<b>208.7</b>	<b>209.8</b>	<b>-</b>
<b>I-880/SR-92 Interchange Reconstruction</b>						
Capital Outlay Support	28.8	34.6	63.4	55.4	63.4	-
Capital Outlay Construction						
BATA Funding	85.2	66.2	151.4	117.5	151.4	-
Non-BATA Funding	9.6	-	9.6	-	9.6	-
Subtotal	94.8	66.2	161.0	117.5	161.0	-
Capital Outlay Right-of-Way	9.9	7.0	16.9	13.9	16.9	-
Project Reserves	0.3	3.4	3.7	-	3.7	-
<b>Total</b>	<b>133.8</b>	<b>111.2</b>	<b>245.0</b>	<b>186.8</b>	<b>245.0</b>	<b>-</b>
<b>Bayfront Expressway Widening</b>						
Capital Outlay Support	8.6	(0.2)	8.4	8.3	8.4	-
Capital Outlay Construction	26.5	(1.5)	25.0	24.9	25.0	-
Capital Outlay Right-of-Way	0.2	-	0.2	0.2	0.2	-
Project Reserves	0.8	(0.3)	0.5	-	0.5	-
<b>Total</b>	<b>36.1</b>	<b>(2.0)</b>	<b>34.1</b>	<b>33.4</b>	<b>34.1</b>	<b>-</b>

## Appendix C: Regional Measure 1 Program Cost Detail (\$ Millions) Cont.

Contract	AB 144 / SB 66 Budget (07/2005)	Approved Changes	Current Approved Budget (12/2010)	Cost to Date (12/2010)	Cost Forecast (12/2010)	At- Completion Variance
a	c	d	e = c + d	f	g	h = g - e
<b>US 101/University Avenue Interchange Modification</b>						
Capital Outlay Support	-	-	-	-	-	-
Capital Outlay Construction	3.8	-	3.8	3.7	3.8	-
<b>Total</b>	<b>3.8</b>	<b>-</b>	<b>3.8</b>	<b>3.7</b>	<b>3.8</b>	<b>-</b>
Subtotal BATA Capital Outlay Support	358.3	61.6	419.9	411.7	420.4	0.5
Subtotal BATA Capital Outlay Construction	1,569.8	215.3	1,785.1	1,720.7	1,785.1	-
Subtotal Capital Outlay Right-of-Way	42.5	5.9	48.4	41.5	48.4	-
Subtotal Non-BATA Capital Outlay Support	14.0	4.0	18.0	17.6	18.0	-
Subtotal Non-BATA Capital Outlay Construction	92.4	9.5	101.9	82.9	102.0	0.1
Project Reserves	35.6	(2.5)	33.1	-	32.5	(0.6)
<b>Total RM1 Program</b>	<b>2,112.6</b>	<b>293.8</b>	<b>2,406.4</b>	<b>2,274.4</b>	<b>2,406.4</b>	<b>-</b>
<b>Notes:</b>						
1 Richmond-San Rafael Bridge Trestle, Fender, and Deck Joint Rehabilitation Includes Non-TBSRA Expenses for EA 0438U_ and 04157_						
2 San Mateo-Hayward Bridge Widening includes EA's 00305_,04501_,04503_,04504_,04504_,04505_,04506_,04507_,04508_,04509_,27740_,27790_,04860_						

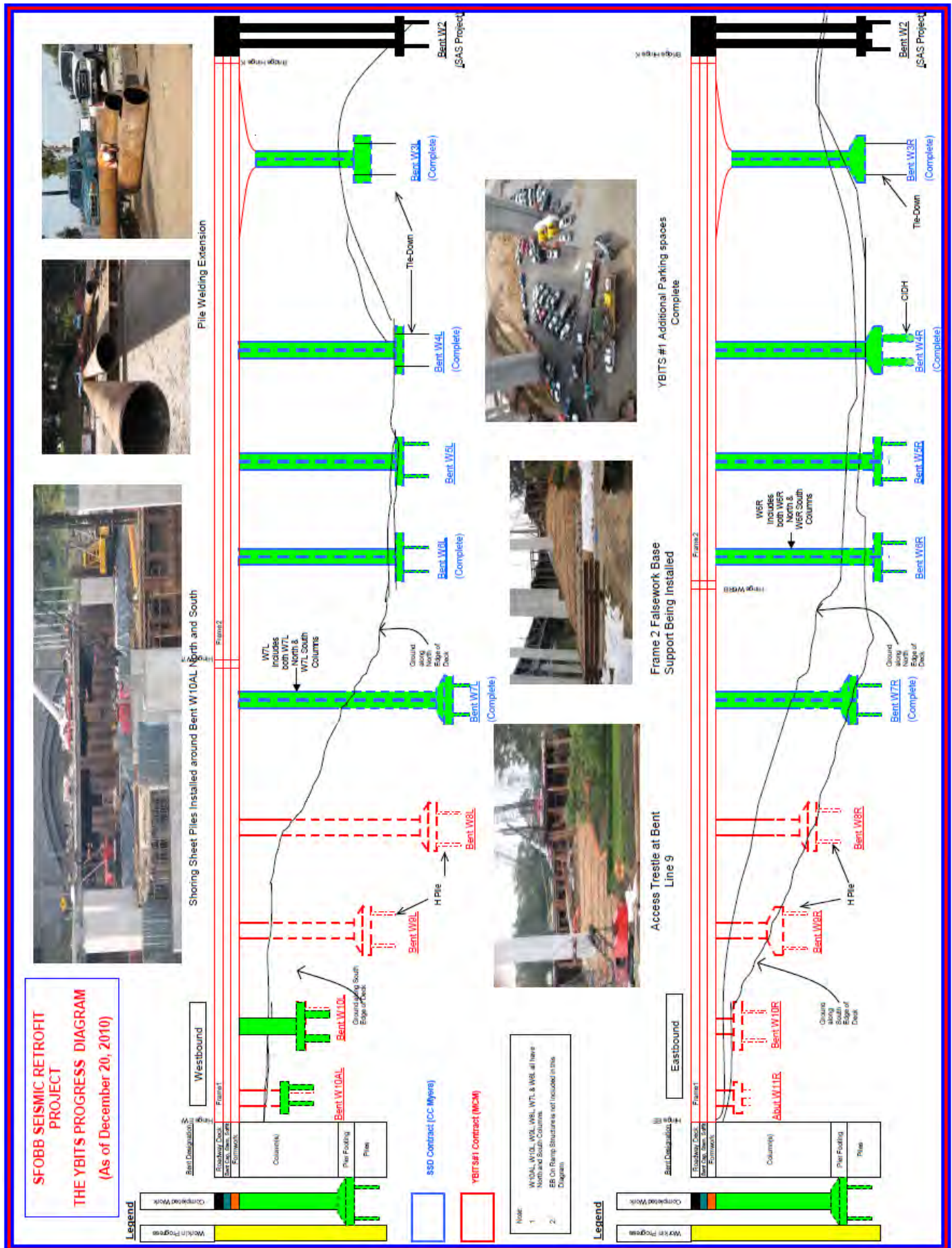


View of the Newly Erected Tower from Under the Roadway Boxes



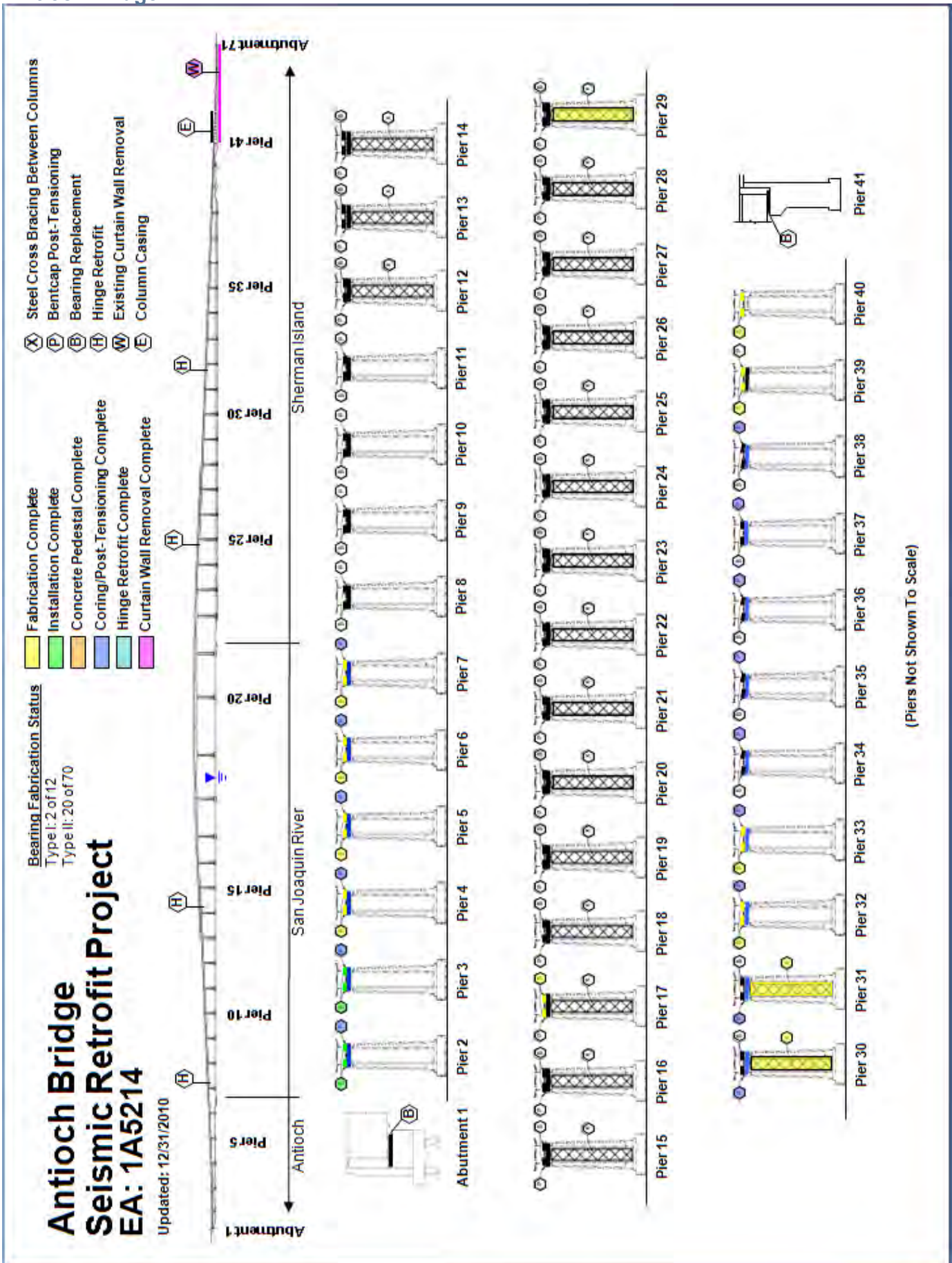
## Appendix D: Progress Diagrams

### Yerba Buena Island Transition Structures



## Appendix D: Progress Diagrams (cont.)

### Antioch Bridge





## Appendix E: Project Progress Photographs

### Self-Anchored Suspension Bridge Fabrication



Roadway Boxes Being Prepared for Loading onto the Ship at ZPMC Heavy Duty Dock in China



Roadway Boxes 13 and 14 in Fabrication at ZPMC





Roadway Box 14 in Sub Assembly



Bike Path Roadway and Cross Beam Being Prepared for Loading onto the Ship at ZPMC heavy Duty Dock in China





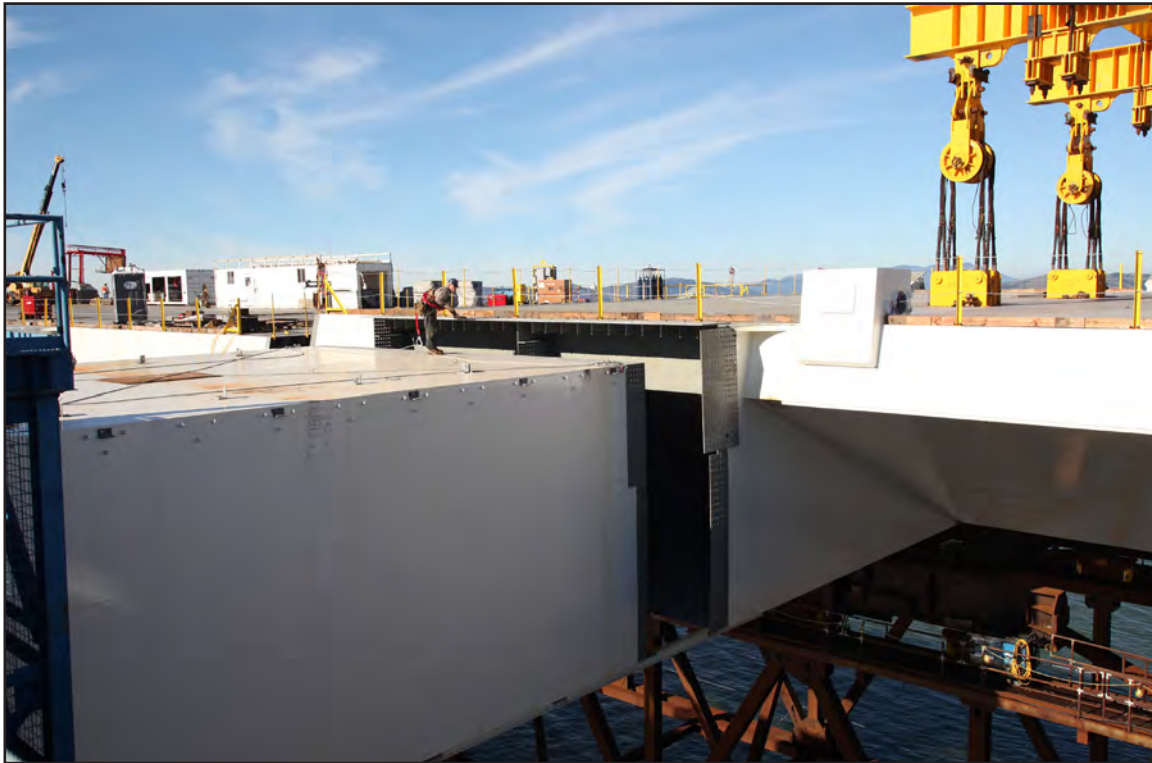


View from under the Roadway Boxes Looking East at Tower Erection Progress



## Appendix E: Project Progress Photographs

### Self-Anchored Suspension Bridge Field Work

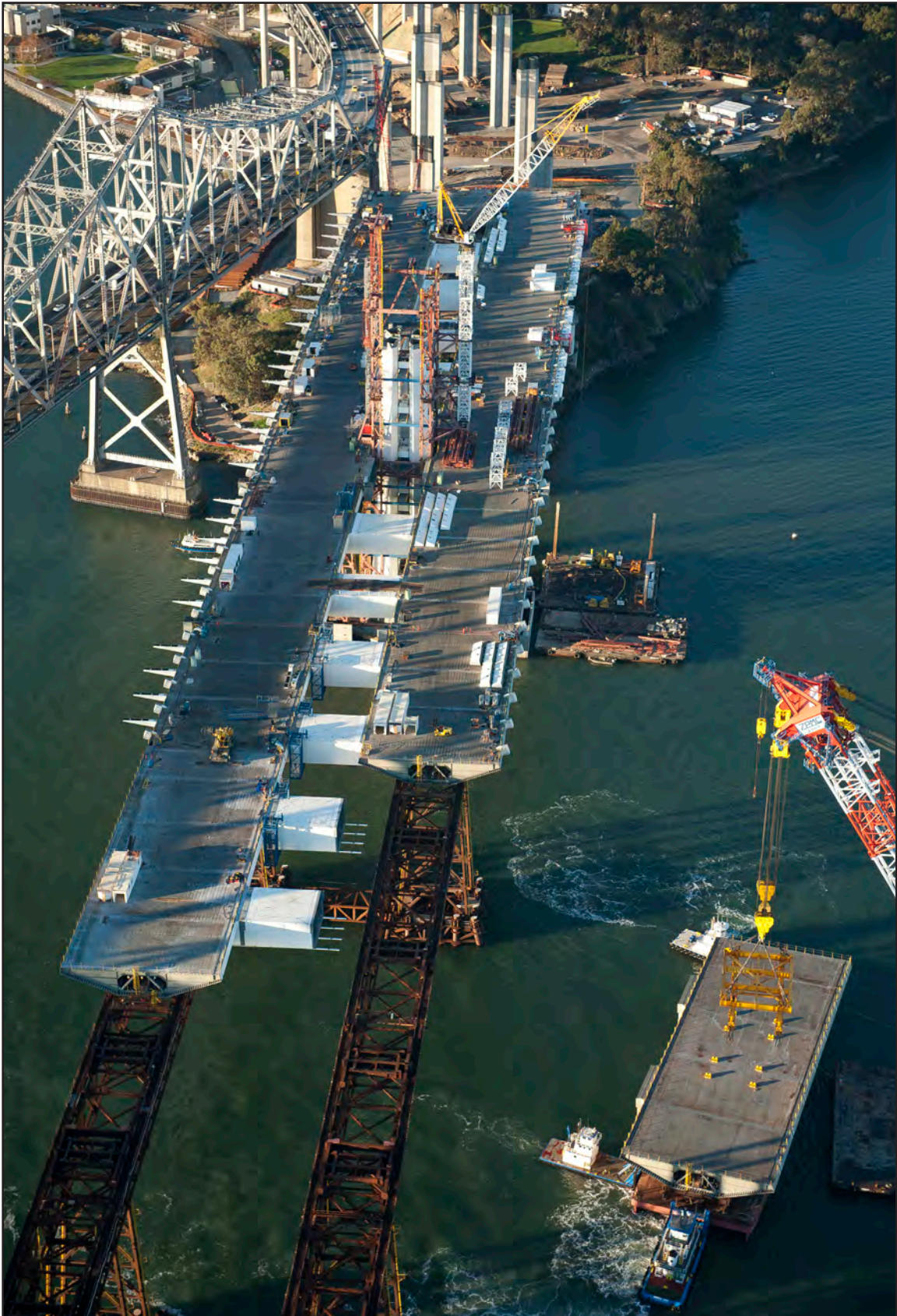


Erecting Cross Beam 14



West Deviation Saddle Erected on W2





Roadway Box 10 Westbound Being Transported by Shear-Leg Crane Barge for Erection



## Appendix E: Project Progress Photographs

### 92/880 Interchange



GRE Work in Progress at Southwest Quadrant of the 92/880 Interchange



Bent 3 of WSCONN Bridge





92/880 Interchange Progress



Drainage Works on the Old Hesperian Off Ramp

## Appendix F: Glossary of Terms

### Glossary of Terms

**AB144/SB 66 BUDGET:** The planned allocation of resources for the Toll Bridge Seismic Retrofit Program, or subordinate projects or contracts, as provided in Assembly Bill 144 and Senate Bill 66, signed into law by Governor Schwarzenegger on July 18, 2005 and September 29, 2005, respectively.

**BATA BUDGET:** The planned allocation of resources for the Regional Measure 1 Program, or subordinate projects or contracts as authorized by the Bay Area Toll Authority as of June 2005.

**APPROVED CHANGES:** For cost, changes to the AB144/SB 66 Budget or BATA Budget as approved by the Bay Area Toll Authority Commission. For schedule, changes to the AB 144/SB 66 Project Complete Baseline approved by the Toll Bridge Program Oversight Committee, or changes to the BATA Project Complete Baseline approved by the Bay Area Toll Authority Commission.

**CURRENT APPROVED BUDGET:** The sum of the AB144/SB66 Budget or BATA Budget and Approved Changes.

**COST TO DATE:** The actual expenditures incurred by the program, project or contract as of the month and year shown.

**COST FORECAST:** The current forecast of all of the costs that are projected to be expended so as to complete the given scope of the program, project, or contract.

**AT COMPLETION VARIANCE or VARIANCE (cost):** The mathematical difference between the Cost Forecast and the Current Approved Budget.

**AB 144/SB 66 PROJECT COMPLETE BASELINE:** The planned completion date for the Toll Bridge Seismic Retrofit Program or subordinate projects or contracts.

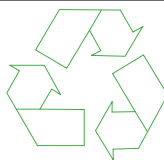
**BATA PROJECT COMPLETE BASELINE:** The planned completion date for the Regional Measure 1 Program or subordinate projects or contracts.

**PROJECT COMPLETE CURRENT APPROVED SCHEDULE:** The sum of the AB144/SB66 Project Complete Baseline or BATA Project Complete Baseline and Approved Changes.

**PROJECT COMPLETE SCHEDULE FORECAST:** The current projected date for the completion of the program, project, or contract.

**SCHEDULE VARIANCE or VARIANCE (schedule):** The mathematical difference expressed in months between the Project Complete Schedule Forecast and the Project Complete Current Approved Schedule.

**% COMPLETE:** % Complete is based on an evaluation of progress on the project, expenditures to date, and schedule.



100% Recyclable

This document, including the coil binding, is 100% recyclable

*The information in this report is provided in accordance with California Government code Section 755. This document is one of a series of reports prepared for the Bay Area Toll Authority (BATA)/Metropolitan Transportation Commission (MTC) for the Toll Bridge Seismic Retrofit and Regional Measure 1 Programs. The contract value for the monitoring efforts, technical analysis, and field site works that contribute to these reports, as well as the report preparation and production is \$1,574,873.73.*







Tower Lift 3 Erection Progress







## *Memorandum*

**TO:** Toll Bridge Program Oversight Committee  
(TBPOC)

**DATE:** January 26, 2011

**FR:** Tony Anziano, Toll Bridge Program Manager, Caltrans  
Peter Lee, Senior Program Coordinator, BATA

**RE:** Agenda No. – 4c

Item – Progress Reports

FHWA 2010 Annual Update to the Financial Plan of the San Francisco-  
Oakland Bay Bridge East Span Seismic Safety Project

---

**Action:**

**APPROVAL**

**Cost:**

N/A

**Schedule Impacts:**

N/A

**Discussion:**

TBPOC approval of the 2010 Annual Update to be submitted to the Federal Highway Administration (FHWA) is being requested. The annual update provides similar and consistent information based on the published TBPOC quarterly reports.

The PMT has reviewed the report and recommends it for the TBPOC approval.

**Attachment:**

2010 Annual Update to the Financial Plan of the San Francisco–Oakland Bay Bridge  
East Span Seismic Safety Project

## **2010 ANNUAL UPDATE TO THE FINANCE PLAN OF THE SAN FRANCISCO – OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT**

This annual update is submitted by the California Department of Transportation (Department) in accordance with the requirements of Section 1305 (b) of the Transportation Efficiency Act for the 21st Century, and Title 23 United States Code, Section 106 (h).

### **Introduction and Summary**

The San Francisco-Oakland Bay Bridge (SFOBB) East Span Seismic Safety Project (ESSSP) is part of the \$8.685 billion Toll Bridge Seismic Retrofit Program (TBSRP). The TBSRP was established to finance the retrofit or replacement of seven state-owned toll bridges. The funding plan for the TBSRP was established by Senate Bill (SB) 60 in 1997, Assembly Bill (AB) 1171 in 2001, and AB 144/SB 66 in 2005.

AB 144 established a comprehensive financial plan for the TBSRP, including the consolidation and financial management of all toll revenues collected on the state-owned toll bridges in the San Francisco Bay Area under the jurisdiction of the Bay Area Toll Authority (BATA). The bill provides \$630 million in additional state funds and authorizes BATA to increase tolls on the Bay Area state-owned toll bridges by at least an additional \$1.00 on January 1, 2007 to provide adequate funding to complete the TBSRP.

In addition, AB 144 and SB 66 significantly strengthen the program and project oversight activities for the TBSRP. The bills created the Toll Bridge Program Oversight Committee (TBPOC) to implement project oversight and control processes for the TBSRP. The TBPOC is comprised of the Director of the Department of Transportation (Caltrans), the Executive Director of BATA, and the Executive Director of the California Transportation Commission (CTC). The TBPOC's program oversight activities include review and approval of contract bid documents, review and resolution of project issues, evaluation and approval of contract change orders and claims, and the issuance of monthly and quarterly progress reports.

Under AB 144, the baseline budget to retrofit or replace the seven state-owned toll bridges was set at \$7.785 billion and a \$900 million program contingency, for a total program budget of \$8.685 billion. The bill reaffirms the self-anchored suspension design for the SFOBB East Span connector. The budgeted total program costs and the funding sources remain unchanged from AB 144.

In January 2010, the seismic retrofit of the Antioch and Dumbarton bridges were added to the Toll Bridge Seismic Retrofit Program per AB 1175. Based on AB 1175, the budget for the seismic retrofit of these two bridges is \$750 million. The total budget for AB 1171/AB 144/AB 1175 is \$9,435 billion. See *Table 1 – Toll Bridge Seismic Retrofit Program Financial Status – Program Budget*.

## Program Budget

AB 1171/AB 144/AB 1175 established a funding level of \$9.435 billion for the TBSRP. The entire program is financed through a combination of toll revenues, federal, state and local funds. See *Table 1 - Toll Bridge Seismic Retrofit Program Financial Status –Program Budget*.

**Table 1 - Toll Bridge Seismic Retrofit Program Financial Status – Program Budget**

**As of September 30, 2010 (\$ Millions)**

	<b>Budgeted</b>	<b>Funding Available &amp; Contributions</b>
<b>Financing</b>		
Seismic Surcharge Revenue AB 1171	\$2,282	\$2,282.0
Seismic Surcharge Revenue AB 144	\$2,150	\$2,150.0
Seismic Surcharge Revenue AB 1175 <sup>(5)</sup>	\$750	\$750.0
BATA Consolidation	\$820	\$820.0
<b>Subtotal - Financing</b>	<b>\$6,002</b>	<b>\$6,002.0</b>
<b>Contributions</b>		
Proposition 192	\$790	\$789.0
San Diego Coronado Toll Bridge Revenue Fund	\$33	\$33.0
Vincent Thomas Bridge	\$15	\$6.9
State Highway Account <sup>(1)(2)</sup>	\$745	\$745.0
Public Transportation Account <sup>(1)(3)</sup>	\$130	\$130.0
ITIP/SHOPP/Federal Contingency	\$448	\$100.0
Federal Highway Bridge Replacement and Rehabilitation (HBRR)	\$642	\$642.0
SHA - East Span Demolition	\$300	\$0.0
SHA - "Efficiency Savings" <sup>(4)</sup>	\$130	\$10.0
Redirect Spillover	\$125	\$125.0
Motor Vehicle Account	\$75	\$75.0
<b>Subtotal - Contributions</b>	<b>\$3,433</b>	<b>\$2,655.9</b>
<b>Total Funding</b>	<b>\$9,435</b>	<b>\$8,657.9</b>
<b>Encumbered to Date</b> <sup>(6)</sup>		<b>\$7,504.9</b>
<b>Remaining Unallocated</b>		<b>\$1,153.0</b>
<b>Expenditures:</b>		
Capital Outlay		<b>\$5,093.0</b>
State Operations		<b>\$1,372.9</b>
Antioch and Dumbarton Expenditures by BATA		<b>\$12.2</b>
Total Expenditures		<b>\$6,478.0</b>
<b>Encumbrances</b> <sup>(6)</sup> :		
Capital Outlay		<b>\$1,054.7</b>
State Operations		<b>\$7.3</b>
Total Encumbrances		<b>\$1,062.0</b>
<b>Total Expenditures and Encumbrances</b>		<b>\$7,540.1</b>

<sup>(1)</sup> The California Transportation Commission adopted a new schedule and changed the PTA/SHA split on December 15, 2005.

<sup>(2)</sup> To date, \$645 million has been transferred from the SHA to the TBSRP, including the full \$290 million transfer scheduled by the CTC to occur in 2005-06. An additional \$100 million has been expended directly from the account.

<sup>(3)</sup> To date, \$130 million has been transferred from the PTA to the TBSRP, including the full amount of all transfers scheduled by the CTC.

<sup>(4)</sup> To date, \$10 million has been transferred from the SHA to the TBSRP, representing the commitment of "Efficiency Savings" identified under AB 144. Approximately \$120 million remains to be distributed as scheduled by the CTC.

<sup>(5)</sup> As of January 1, 2010, seismic retrofitting of Antioch and Dumbarton Bridges became part of the Toll Bridge Seismic Retrofit Program with the passage of AB 1175.

<sup>(6)</sup> Due to the implementation of the new Accounting system, the encumbrance data is not available for updating at this time.



Of the \$9.435 billion budgeted for the TBSRP, \$7.5 billion has been allocated as of September 30, 2010. Through September 2005, \$789 million provided by Proposition 192 has been allocated by the CTC. The final \$1 million from the budgeted Proposition 192 contribution will become available to the TBSRP upon allocation by CTC. Caltrans plans to request the final \$1 million Proposition 192 allocation at future CTC meeting. For contributions from Vincent Thomas Bridge (VTB), the remaining \$8.1 million budgeted contribution is not available. When funds from the VTB account were transferred to the TBSRP, the VTB account was short \$8.1 million. Therefore, the TBSRP has an \$8.1 million shortfall. The schedule to transfer ITIP/SHOPP/Federal Contingency, the SHA – East Span Demolition, and the SHA – Efficient Savings are shown in *Table 2 - Schedule of Contributions to the Toll Bridge Seismic Retrofit Program*.

The schedule as shown in *Table 2 - Schedule of Contributions to the Toll Bridge Seismic Retrofit Program* was adopted by CTC in December 2005 for the transfer of funds to pledge state fund contribution to the financing of the TBSRP per BATA's adopted finance plan.

Table 2 - Schedule of Contributions to the Toll Bridge Seismic Retrofit Program (\$ in Millions)

Source	Description	2005 - 06 (Actual)	2006 - 07 (Actual)	2007 - 08 (Actual)	2008 - 09 (Actual)	2009 - 10 (Actual)	2010 - 11	2011 - 12	2012 - 13	2013 - 14	Total
AB 1171	SHA	290									290
	PTA	80	40								120
	Highway Bridge Replacement and Rehabilitation (HBRR)	100	100	100	42						342
	Contingency				1	99	100	100	148		448
AB 144	SHA*	2	8				53	50	17		130
	Motor Vehicle Account (MVA)	75									75
	Spillover		125								125
	SHA**									300	300
		547	273	100	43	99	153	150	165	300	1830

\* Caltrans Efficiency Savings

\*\* SFOBB East Span Demolition Cost

## Program Financing and Cash Flow Projections

AB 144 consolidated the administration of all toll revenues collected on the state-owned Bay Area toll bridges and financing of the TBSRP under the jurisdiction of the BATA. BATA has direct programmatic responsibilities for the administration of all toll revenues collected on the state-owned bridges in the Bay Area and responsibilities for financial management of the TBSRP, including:

- Administrative responsibility for collection and accounting of all toll revenues.
- Authorization to increase tolls on the state-owned bridges by \$1.00, effective no sooner than January 1, 2007.
- Project level toll setting authority as necessary to cover additional cost increases beyond the funded \$900 million program contingency in order to complete the toll bridge seismic retrofit program.
- Assumption of funding all of the roadway and bridge structure maintenance from Caltrans once bridge seismic retrofit projects are completed.

In accordance with its responsibilities provided under the law, in September 2005, BATA adopted a finance plan for the TBSRP. The major components of the finance plan include:

- Issuing \$6.2 billion in debt, including defeasance of \$1.5 billion in outstanding State Infrastructure Bank bonds and commercial paper;
- Increasing tolls on the state-owned bridges by \$1.00 (from \$3.00 to \$4.00 for two-axle vehicles), effective January 1, 2007;
- Securing the maximum amount of state funding early in the construction schedule to most efficiently use toll funds (see discussion below); and,
- Locking in historically low interest rates to the extent possible in order to improve the chances that the entire toll program construction and the operations and maintenance can be delivered within the \$4.00 auto toll level.

In September 2005, BATA approved a Finance Plan for the TBSRP and other toll bridge improvement programs dependent on toll revenues from the state-owned bridges. The finance plan calls for \$6.2 billion in new debt issuances, including defeasance of the existing outstanding I-Bank bonds. Consistent with the finance plan, in December 2005, BATA approved the issuance of up to \$1.0 billion of 2006 toll bridge revenue bonds. The bond issuance will provide adequate cash flow to fund the SAS contract for the ESSSP, which was awarded on May 3, 2006.

Furthermore, in March 2006, BATA approved the issuance of \$1.3 billion in bonds to defease the I-Bank bonds approved in October 2005. Additionally, pursuant to the law, BATA held two public hearings, one in October and one in November 2005, to receive public testimony regarding the proposed \$1.00 seismic surcharge toll increase beginning on January 1, 2007 on the state-owned toll bridges in the Bay Area. BATA approved the toll increase on January 25, 2006.

Furthermore, SB 66, enacted on September 29, 2005, appropriates \$75 million of specified Motor Vehicle Account funds and \$125 million of other specified state funds for state-owned toll bridges in the Bay Area. These funds have already been transferred to the Toll Bridge Seismic Retrofit Account.

Furthermore, AB 1175, enacted on January 1, 2010, added the seismic retrofit of the Antioch and Dumbarton bridges to the TBSRP. BATA has taken action to raise tolls on the state-owned Bay Area toll bridges to fund these projects. The toll increases went into effect in the summer of 2010. These increases include tolls for carpoolers and congestion pricing on the Bay Bridge. The total budget for the seismic retrofit of these two bridges per AB 1175 is \$750 million.

The following pro forma financial statement projects the financial operations and results for BATA for fiscal years 2011-2019. See *Table 3 - BATA Pro Forma Financial Projections*.



**Table 3 - Bay Area Toll Authority Pro Forma Financial Projections**(\$ in Thousand)  
(Updated as of November 2010)

	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
<b>Operating Revenue</b>									
Toll Revenue	\$ 589,381	\$ 608,170	\$ 630,692	\$ 633,845	\$637,014	\$640,200	\$643,401	\$646,618	\$649,851
Interest Income	20,919	20,915	36,857	47,377	52,182	55,997	51,730	49,054	48,825
<b>Total Operating Revenue</b>	<b>\$ 610,300</b>	<b>\$ 629,085</b>	<b>\$ 667,549</b>	<b>\$ 681,222</b>	<b>\$ 689,196</b>	<b>\$ 696,197</b>	<b>\$ 695,131</b>	<b>\$ 695,672</b>	<b>\$ 698,676</b>
<b>Operating Expenses</b>									
Other Operating Expenses*	\$ (50,251)	\$ (50,402)	\$ (50,784)	\$ (51,172)	\$ (51,565)	\$ (51,964)	\$ (52,370)	\$ (52,782)	\$ (53,201)
Toll Operating Expenses	(68,461)	(74,470)	(75,060)	(76,811)	(78,611)	(80,461)	(82,362)	(84,316)	(86,324)
<b>Total Operating Expenses</b>	<b>\$ (118,712)</b>	<b>\$ (124,872)</b>	<b>\$ (125,844)</b>	<b>\$ (127,983)</b>	<b>\$ (130,176)</b>	<b>\$ (132,425)</b>	<b>\$ (134,732)</b>	<b>\$ (137,098)</b>	<b>\$ (139,525)</b>
<b>Net Before Debt Service</b>	<b>\$ 491,588</b>	<b>\$ 504,213</b>	<b>\$ 541,705</b>	<b>\$ 553,239</b>	<b>\$ 559,020</b>	<b>\$ 563,772</b>	<b>\$ 560,399</b>	<b>\$ 558,574</b>	<b>\$ 559,151</b>
Debt Service	(399,130)	(440,735)	(473,351)	(503,958)	(503,920)	(510,429)	(510,484)	(510,461)	(510,484)
<b>Net Operating Revenue</b>	<b>\$ 92,458</b>	<b>\$ 63,478</b>	<b>\$ 68,354</b>	<b>\$ 49,281</b>	<b>\$ 55,100</b>	<b>\$ 53,343</b>	<b>\$ 49,915</b>	<b>\$ 48,113</b>	<b>\$ 48,667</b>
<b>State Contribution (AB144/SB66)</b>									
CONTINGENCY **	\$ 100,000	\$ 100,000	\$ 148,000			\$ -	\$ -	\$ -	
EFFICIENCY SAVINGS**	\$ 53,000	\$ 50,000	\$ 17,000						
HBRR **									
<b>Total State Contribution</b>	<b>\$ 153,000</b>	<b>\$ 150,000</b>	<b>\$ 165,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
Debt Proceeds	2,395,788	500,000	430,000	-	-	-	-	-	-
<b>Total Non Operating Revenue</b>	<b>\$ 2,548,788</b>	<b>\$ 650,000</b>	<b>\$ 595,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Total TBSRP Expenses</b>	<b>\$ (859,605)</b>	<b>\$ (626,256)</b>	<b>\$ (504,625)</b>	<b>\$ (293,256)</b>	<b>\$ (234,658)</b>	<b>\$ (85,600)</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Beginning Balance</b>	<b>\$ 2,015,000</b>	<b>\$ 2,610,288</b>	<b>\$ 2,090,201</b>	<b>\$ 1,901,066</b>	<b>\$ 1,515,749</b>	<b>\$ 1,289,693</b>	<b>\$ 1,140,547</b>	<b>\$ 1,073,651</b>	<b>\$ 1,005,029</b>
<b>Total Net Income</b>	<b>1,781,641</b>	<b>87,222</b>	<b>158,729</b>	<b>(243,975)</b>	<b>(179,558)</b>	<b>(32,257)</b>	<b>49,915</b>	<b>48,113</b>	<b>48,667</b>
Misc Transfers/Costs	(1,186,353)	(607,309)	(347,864)	(141,342)	(46,498)	(116,889)	(116,811)	(116,735)	8,342
<b>Ending Fund Balance</b>	<b>\$ 2,610,288</b>	<b>\$ 2,090,201</b>	<b>\$ 1,901,066</b>	<b>\$ 1,515,749</b>	<b>\$ 1,289,693</b>	<b>\$ 1,140,547</b>	<b>\$ 1,073,651</b>	<b>\$ 1,005,029</b>	<b>\$ 1,062,038</b>

**Base Assumptions:****Revenue Assumptions**

Bay Bridge down 1% in 2011; flat in 2012 then .50% per year until 43.3million vehicle cap, then flat  
All Other Bridges down 1% in 2011; flat in 2012 then .50% per year growth

**Interest Earnings Assumptions**

Fund Balance Earnings 0.25% short term; 1.75% long term

**Floating Rate Bonds**

2.12% growing to 2.91%; support costs 1.0%;basis cost 0.16%

**Expenses**

Operating and Maintenance grow at 3% from 2009 levels

\*MTC to BATA transfers

\*\* CTC adopted pmt schedule

Contingency

HBRR

Efficiency Savings

## Project Description

The SFOBB ESSSP will be seismically retrofitted through the complete replacement of the existing span. The project includes construction of the Skyway portion of the bridge, which consists of two parallel concrete structures, each approximately 1.3 miles in length; an SAS bridge consisting of a 510-foot tower supporting a bridge deck connecting the Skyway to Yerba Buena Island Transition Structures (YBITS) on YBI and on the east end of the bridge connecting the bridge to the toll plaza area, and the demolition of the existing east span after the new bridge is completed.

The SFOBB ESSSP now consists of 21 contracts. Construction of the Oakland Touchdown (OTD) Approach Structures and the YBITS has been split into multiple contracts to facilitate construction flow and to accelerate some elements of work off the critical path for the completion of the new east span.

## Current Status

The current 21 contracts for SFOBB ESSSP are identified below:

Fourteen contracts are **complete**:

- Interim Retrofit (Existing Bridge)
- East Span Retrofit (Existing Bridge)
- Pile Installation Demonstration
- OTD Geofill
- YBI Archaeology
- United States Coast Guard (USCG) Road Relocation on YBI
- SAS Land Foundations (W2)
- YBI Electrical Substation
- OTD Submarine Cable
- Skyway
- SAS Marine Foundations (E2/T1)
- Stormwater Treatment Measures
- OTD Contract 1
- South/South Detour

Two contracts are under **construction**:

- SAS (59% complete as of September 2010)
- YBITS 1 (5% complete as of September 2010)

Five contracts are in **design**:

- OTD Contract 2 (construct eastbound superstructure, landscaping, and maintenance road)
- OTD Portions of the Corridor Electrical Contract: This scope will be included within other contracts within the east span corridor.
- YBITS No.2
- YBITS No.3 Landscape contract
- Existing Bridge Demolition

## Project Timeline/Implementation Plan

As of September 30, 2010, it is anticipated that the new SFOBB East Span will be open to traffic by 2013. The opening of the new WB and EB lanes of the SFOBB ESSSP involves three segments: YBITS, SAS, and OTD. These three segments are being built and administered by three separate contracts with different construction completion dates. Construction activities on YBITS 2 and OTD No. 2 contracts will continue beyond the opening of the new East Span. For the YBITS 2 contract, these construction activities are to build the new EB on-ramp to Route 80, and to restore the local roads on YBI that are impacted by the construction of the new East Span. For the OTD No. 2 contract, these construction activities are to remove the EB Route 80 Detour, to construct the remaining bike path, construct Caltrans Maintenance road, and landscaping the OTD area. See *Table 4 – SFOBB ESSSP Baseline and Projected Schedule Summary*.

The demolition of the existing East Span is scheduled to be completed in 2015, approximately two years after the new East Span is open to traffic; thereby, the delivery of the TBSRP.

Table 4 - SFOBB ESSSP Baseline and Projected Schedule Summary.

Contract	AB 144/SB 66 Baseline Project Completion Date	Approved Changes (Months)	Current Approved Schedule	3rd Quarter 2010 Forecast Project Completion date	Variance (Months)
Skyway	April 2007	8	December 2007	December 2007	
SAS Marine Foundation	June 2008	(5)	January 2008	January 2008	
SAS Superstructure	March 2012	29	August 2014	August 2014	
YBI Detour	July 2007	41	December 2010	October 2010	(2)
YBI Transition Structures (YBITS)	November 2013	12	November 2014	March 2015	4
YBITS 1			September 2013	December 2013	3
YBITS 2			November 2014	March 2015	4
Oakland Touchdown	November 2013	12	November 2014	March 2015	4
OTD1			June 2010	June 2010	
OTD 2			November 2014	November 2014	
Submarine Cable			January 2008	January 2008	
Existing Bridge Demolition	September 2014	12	September 2015	December 2015	3
Stormwater Treatment Measures	March 2008		March 2008	March 2008	
Westbound Open	September 2011	26	December 2013	December 2013	
Eastbound Open	September 2012	14	December 2013	December 2013	

For additional information regarding the Implementation Plan, see Attachment 1, *San Francisco Bay Area, Toll Bridge Seismic Retrofit and Regional Measure 1 Programs – 2010 Third Quarter Project Progress and Financial Update*.



## **Cost Estimate**

### **TBSRP Reporting**

The Department, together with the TBPOC, uses three primary measures to monitor and report the financial status of the SFOBB ESSSP: the Baseline Budget established by California AB 144 of 2005, the current TBPOC Approved Budget, and the current Forecast Cost.

### **Baseline Budget**

The budget established when AB 144 became law in July 2005 was the baseline budget.

### **Forecast Cost**

The TBSRP forecast cost at completion depends on the quality of plans, contractor's performances, construction administration and effectiveness of implementing risk mitigation measures. Consequently, the Department has undertaken a probabilistic assessment of the expected program cost at completion. Quantitative cost risk analyses associated with TBSRP Capital Outlay (CO) and Capital Outlay Support (COS) are reported in the Quarterly Risk Management Report (QRM) and considered in the TBPOC's cost forecasts.

### **Cost History**

The AB 144/SB 66 baseline budget for the SFOBB ESSSP was \$5.487 billion with \$959.3 million in COS and \$4.527 billion in CO. As of this report, the TBPOC approved budget changes to some of the SFOBB ESSSP contracts. The TBPOC current approved budget was \$6.183 billion, an increase of \$696.5 million from the AB 144/SB 66 baseline budget. The Third Quarter 2010 forecast of the SFOBB ESSSP was \$6.348 billion. The increase will be funded by redirected project savings from the Richmond-San Rafael Bridge, savings from other completed contracts within the East Span, and from the program contingency. Currently, the TBPOC approved budget for the Toll Bridge Program is \$9.082 billion which includes \$397 million from AB 1175. See *Table 5 - Toll Bridge Seismic Retrofit Program, Cost History*.

**Table 5 - Toll Bridge Seismic Retrofit Program, Cost History (\$ Millions)**

Contract a	AB 144/ SB 66 Budget b	Approved Changes c	Current Approved Budget d = b + c	3rd Quarter 2010 Forecast f	Variance g = f - d
<b>Completed Projects</b>					
Benicia-Martinez	177.8	-	177.8	177.8	-
Carquinez	114.2	-	114.2	114.2	-
San Mateo-Hayward	163.5	(0.1)	163.4	163.4	-
Vincent Thomas	58.5	(0.1)	58.4	58.4	-
San Diego-Coronado	103.5	(0.9)	102.6	102.6	-
SFOBB West Span	307.9	(5.7)	302.2	302.2	-
Richmond-San Rafael	914.0	(97.5)	816.5	816.5	-
SFOBB West Approach	429.0	39.7	468.7	456.6	(12.1)
<b>Ongoing Projects</b>					
Antioch Bridge			101.0	99.1	(1.9)
Dumbarton Bridge			148.7	148.7	-
SFOBB East Span	5,486.6	696.5	6,183.1	6,348.3	165.2
Capital Outlay Support	959.3	203.0	1,162.3	1,282.5	120.2
Capital Outlay	4,527.2	493.6	5,020.8	5,065.8	45.0
Skyway	1,293.0	(38.9)	1,254.1	1,254.1	-
SAS Superstructure	1,753.7	293.1	2,046.8	2,097.4	50.6
SAS E2/T1 Foundations	313.5	(32.6)	280.9	280.9	-
YBI South/South Detour	131.9	360.9	492.8	487.5	(5.3)
YBI Structures	299.3	(93.0)	206.3	243.9	37.6
YBITS 1				169.5	
YBITS 2				71.1	
YBITS 3				3.3	
Oakland Touchdown	283.8	4.2	288.0	280.2	(7.8)
OTD Submarine Cable				9.6	
OTD Westbound				203.4	
OTD Eastbound				62.8	
OTD Electrical Systems				4.4	
Existing Bridge Demolition	239.2	(0.1)	239.1	233.0	(6.1)
Measures	15.0	3.3	18.3	18.3	-
East Span Completed Projects	90.3		90.3	90.4	0.1
Right-of-Way and Environmental Mitigation	72.4		72.4	72.4	-
Other Budgeted Capital	35.1	(3.3)	31.8	7.7	(24.1)
Miscellaneous Program Costs	30.0		30.0	30.0	-
<b>Subtotal</b>	<b>7,785.0</b>	<b>631.9</b>	<b>8,665.6</b>	<b>8,817.8</b>	<b>151.2</b>
Net Programmatic Risks				59.1	59.1
Program Contingency	900.0	(484.6)	415.4	205.1	(210.3)
<b>TOTAL</b>	<b>8,685.0</b>	<b>397.0</b>	<b>9,082.0</b>	<b>9,082.0</b>	<b>(0.0)</b>

*Note: Details may not sum to totals due to rounding effects.*

## Summary of Significant Cost Change

The TBSRP Quarterly Report includes a discussion of the status of TBSRP projects and financial information consisting of baseline costs and forecast costs. The TBSRP Quarterly Report currently includes a discussion of risks and the adequacy of Program Contingency provided by Risk Management.

Caltrans continuously evaluates project and contract cost forecasts. The forecast as of September 30, 2010, includes revised forecasts from the AB 144/SB 66 baseline budget and TBPOC approved budget, and is as follows:

- In the second quarter of 2010, the TBPOC approved a revised COS budget for the SFOBB ESSSP. The current approved COS budget is \$1.16 billion, an increase of \$203 million over AB 144/SB 66 baseline budget.
- In the third quarter of 2010, the TBPOC approved a revised CO budget for the SAS. The additional \$293 million will facilitate the execution of significant change orders to resolve outstanding contract issues and to provide incentives for accelerating the opening of the new bridge. The revised budget is \$2.0467 billion.
- A decrease of \$39 million in the budget for the Skyway contract due to savings after contract closeout. The construction was completed in 2008.
- A decrease of \$33 million in the budget for the SAS Marine Foundation (E2/T1) contract due to savings after contract closeout. The construction was completed in 2008.
- In June 2008, the TBPOC approved a number of changes to the YBI South/South Detour (SSD) contract to better integrate the detour work into the current project schedule and to reduce overall project risks. These changes will mitigate risks related to the tie-in of the detour viaduct to the existing viaduct as well as mitigate the overall schedule risks. The current TBPOC approved contract budget is \$492.8 million, an increase of \$361 million over the AB 144/SB 66 baseline budget.

All of the approved cost increases discussed above can be funded from a combination of savings from closeout contracts (Richmond-San Rafael, Skyway, and SAS Marine Foundation), and also from the program contingencies.

For additional information, please refer to *Appendix B - TBSRP East Span Only AB 144/SB66 Baseline Budget, Forecasts, and Expenditures through September 30, 2010*, pages 58 - 60 of *Attachment 1 – San Francisco Bay Area, Toll Bridge Seismic Retrofit and Regional Measure 1 Programs, 2010 Third Quarter Project Progress and Financial Update*.



## SFOBB ESSSP Risk Management

Caltrans continues to implement comprehensive risk management on all SFOBB ESSSP contracts in accordance with AB 144. Currently, Caltrans and BATA have embarked on an initiative to manage risk jointly. Risk response efforts continue to focus on encouraging responsive bids for future contracts and mitigating the estimated cost and schedule impacts of identified risks. Updates of these risk management activities are included in *Attachment 1 - San Francisco Bay Area, Toll Bridge Seismic Retrofit and Regional Measure 1 Programs, 2010 Third Quarter Project Progress and Financial Update*.

Cost and schedule risk management activities are ongoing for all contracts. The “bottom line” of cost risk analysis is whether the Program Reserve remains adequate to cover project risks. AB144 requires Caltrans to regularly assess the adequacy of the Program Reserve.

AB 144 set a \$900 million Program Reserve (also referred to as the Program Contingency). The TBPOC approved Program Contingency is at \$415.4 million as of the end of the third quarter 2010. See *Table 5 - Toll Bridge Seismic Retrofit Program, Cost History*.

Each contract has a contingency allowance within its budget. The sum of these contingency allowances is compared to the total of capital outlay, capital outlay support and program-wide risks. Any excess of the risks over the contingency allowances represents a potential draw on the Program Contingency (the reserve). As of the end of the third quarter 2010, the potential draw on Program Contingency ranged from about \$75 million to \$350 million, as shown in Figure 1.

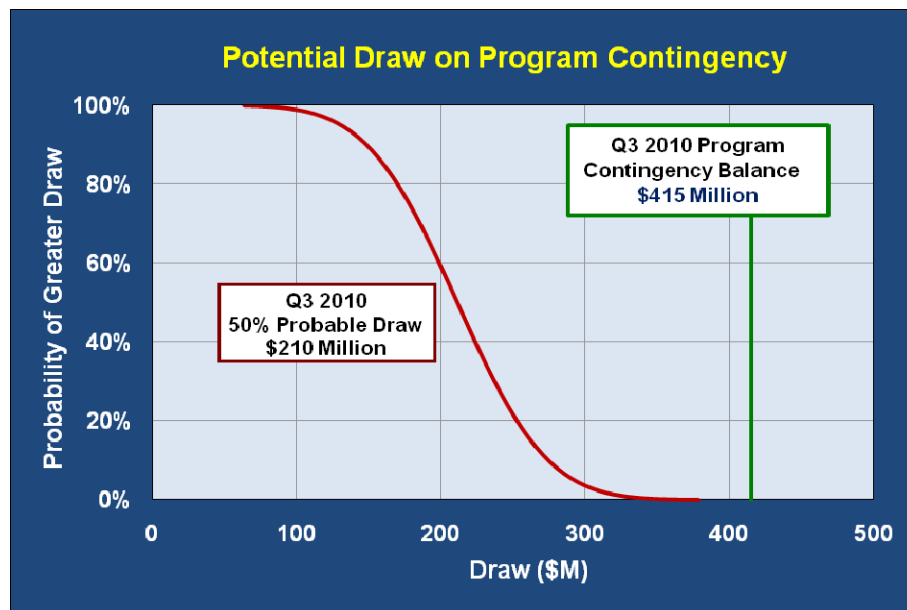


Figure 1 - Potential Draw on Program Contingency

The Program Contingency is currently sufficient to cover the cost of identified risks. This is a substantial improvement from the previous year when there was a 50% probability that the Program Contingency could be depleted. This improvement was primarily due to two favorable developments:

1. A competitive bidding environment resulted in significant bid savings on three projects that went into construction this year.

2. The transfer of project risks into contract change orders (where the cost of those change orders was less than the range of cost risks carried in the risk registers) resulted in an overall lower draw on the Program Contingency. This not only lowered the overall risk cost but also lowered the range of uncertainty associated with the remaining risks.

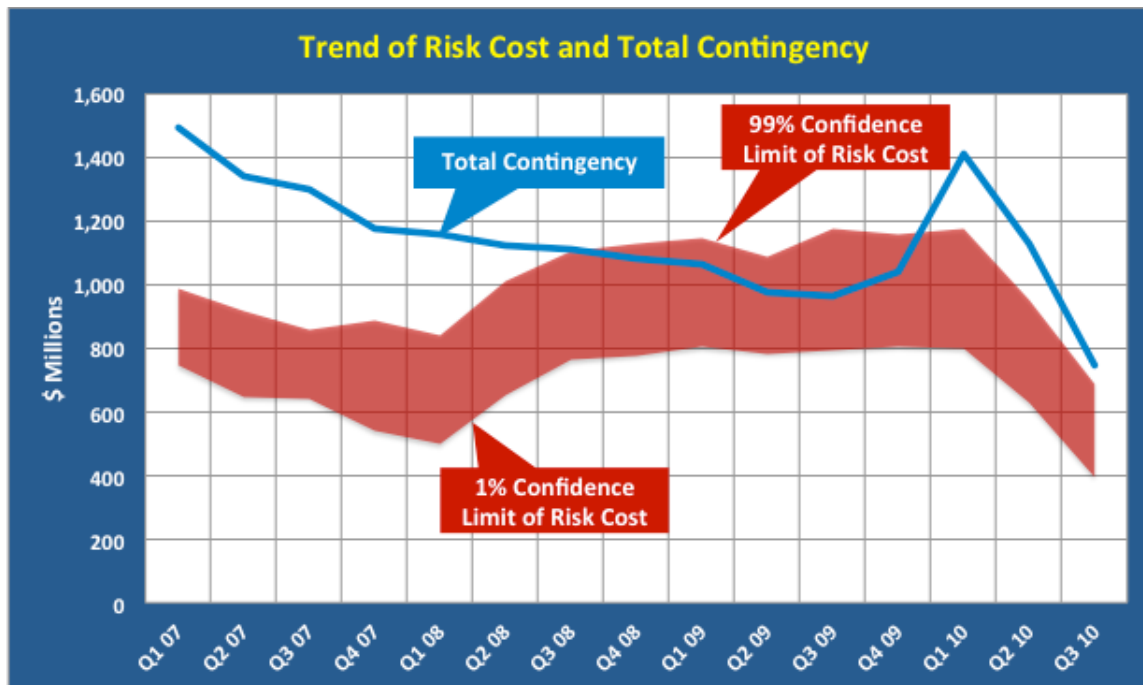


Figure 2 – Risk Trend Since 2007

Figure 2 shows the risk trend since 2007. The solid area depicts the range of the total cost of all capital outlay, capital outlay support and program-wide risks. Total Contingency is the sum of remaining contingency allowances of the contracts plus the balance in the Program Contingency.

Since the 2009 Financial Update, the risk cost range remained constant through the first quarter 2010. The addition of the Antioch and Dumbarton Bridge retrofits to the TBSRP in the first quarter 2010 had a minor impact on the risk range. In the second and third quarters 2010, several contract change orders replaced many risks that were retired and since the contract change orders were issued for costs less than the risks that were retired, the total contingency is now sufficient to cover the cost of identified risks.

### Risk Management Milestones

The OTD 1 and SSD contracts are complete. The risk management team effectively projected a range for the final cost of each of these contracts well in advance of contract completion. The YBITS 1, Antioch and Dumbarton contract bids received were below their estimates, thereby increasing the contingency available to the TBSRP.

## **Major Risk Responses**

Risk identification, updating and mitigation activities are ongoing on all contracts in the project.

### **1. Changes to SAS Schedule**

The TBPOC and Caltrans executed a contract change order with the SAS Contractor that revises the SAS contract milestones to achieve the TBPOC's goal of achieving seismic safety in 2013. The change order includes incentives for the OBG Lifts 13 and 14 departure from China and the SAS bridge being ready for opening in 2013. In the next quarter the SAS Contractor will submit a schedule that meets these objectives. The schedule is likely to be very aggressive and there are risks to the future activities on the critical paths through OBG delivery and erection, cable installation, load transfer, and completion of MEP systems required for the opening. It will be imperative to manage the schedule and have forewarning of impending risks so that action can be taken swiftly to prevent or mitigate potential delays.

### **2. Fabrication and Erection of SAS Deck and Tower**

All SAS schedule risks associated with past issues and claimed delays were retired as a result of the change order that modified SAS contract milestones. The fabrication and erection of the deck east end sections (Lifts 13 and 14) continues to be on the critical path. These are the most complicated sections to fabricate. The SAS contractor and Caltrans remain diligent in their Quality Control and Quality Assurance efforts to assure only elements that meet contractual quality standards will be incorporated into the work.

### **3. SAS Cable Installation**

The Cable Engineering Risk Management (CERM) team continues to identify and resolve outstanding cable installation issues. The CERM team has recommended several modifications that have resolved potential spatial conflicts and issues related to cable rotation during installation of the cable bands and suspenders.

### **4. YBITS/SAS Hinge Closure Construction Staging**

The YBITS 1 Contractor's completion of Hinge K is on the critical path to westbound opening. When load transfer is completed, the SAS Contractor removes the temporary works at W2 and clears the area for the YBITS 1 Contractor to complete the westbound frame 2 and the Hinge K closure. Caltrans reached agreement with the SAS and YBITS 1 Contractors to grant the YBITS 1 Contractor early access to a portion of this area in January 2011. This will allow the YBITS 1 Contractor to complete the eastern frames and stress the YBITS structure before SAS load transfer. The early access to the area greatly reduces cost and schedule risk by allowing the YBITS 1 Contractor to sequence its work to re-use falsework.

### **5. Earlier Eastbound Opening**

The eastbound bridge is currently scheduled to open five months after the westbound bridge because some construction activities can only proceed after the demolition of a section of the existing westbound structure. The TBPOC approved the further development of an Oakland Touchdown Detour strategy that would allow opening the eastbound bridge at the same time as the westbound. Constructability, cost, and right-of-way issues are under investigation, and a final decision is expected next quarter.



**Summary**

The enactment of AB 144 provides the financing necessary to complete the TBSRP as quickly as possible. The bill required the Department and BATA to amend the cooperative agreement to incorporate certain oversight and control responsibilities of each agency. The bill also required the formation of a Toll Bridge Program Oversight Committee, comprised of the Director of the Department, the Executive Director of the BATA, and the Executive Director of the CTC.

All of these requirements have been met. In addition, AB 144 specifies BATA has financial control of the program while the Department has the responsibility for construction. The bill provides that any further cost increases must be paid by BATA.

BATA has the authority to increase tolls to fund these potential cost increases, if necessary. The bill gives BATA control of all three existing dollars and the new fourth dollar imposed on January 1, 2007.

The following attachment incorporated by reference to this annual update:

*Attachment 1 - San Francisco Bay Area, Toll Bridge Seismic Retrofit and Regional Measure 1 Programs, 2010 Third Quarter Project Progress and Financial Update.*

## *Memorandum*

**TO:** Toll Bridge Program Oversight Committee      **DATE:** January 26, 2011  
(TBPOC)

**FR:** Tony Anziano, Toll Bridge Program Manager, Caltrans

**RE:** Agenda No. - 5a1

Item- San Francisco-Oakland Bay Bridge Updates  
Yerba Buena Island Transition Structures No. 1 Update

---

**Recommendation:**

For Information Only

**Cost:**

N/A

**Schedule Impacts:**

N/A

**Discussion:**

A verbal update on the Yerba Buena Island Transition Structures No. 1 contract will be provided at the February 3<sup>rd</sup> meeting.

**Attachment(s):**

N/A

## *Memorandum*

**TO:** Toll Bridge Program Oversight Committee (TBPOC)      **DATE:** January 26, 2011

**FR:** Brian Maroney, Deputy Toll Bridge Program Manager  
California Department of Transportation

**RE:** Agenda No. - 5b1  
San Francisco-Oakland Bay Bridge Updates  
Item- Temporary Oakland Touchdown Detour scope and budget

---

**Recommendation:**  
**APPROVAL**

**Cost:**  
Budget of \$88 million

**Discussion:**  
Staff requests TBPOC approval to:

1. Accelerate the Seismic Safety Opening of the SFOBB by Advancing the Temporary Oakland Touchdown Detour (TOTDD), and
2. Require specific TBPOC approval of TOTDD CCOs for eastbound, westbound foundation and remainder of westbound.

This memo provides the scope and budget for the Temporary Oakland Touchdown Detour. An updated memo will be provided at the TBPOC meeting on February 3.

A schedule of work is attached that list major items of work and established durations and completion dates. Work is continuing on the design and Right-of-Way necessary for the project. Work on the necessary permits and utility relocations are also advancing. Some utility relocation and permit/agreement work has begun in the field including locating of the Environmentally Sensitive Areas (ESAs) and fencing for protection for those areas, power line relocation, Burma Road extension repaving, and detailed field surveying. Eastbound roadway design plans will be completed and submitted in early February. Westbound design work is fully underway.

As part of the appropriate and necessary environmental work, a scope of work that is draft for the environmental reevaluation is included as an attachment. By the February



## *Memorandum*

3rd 2011 TBPOC meeting it is anticipated that the environmental re-evaluation document will be completed and signed.

A cost estimate is presented including Right-of-Way and Utilities, Capital, Capital Outlay Support, and Risk. That estimate is presented in Table 1. The estimate is believed to be preliminary and conservatively high.

**Table 1 Temporary Oakland Touchdown Detour Cost Estimate**

Item	Cost
R/W & Permits	8M\$
Capital (some contingency included)	52.5 M\$
COS	15 M\$
Risk	12.2 M\$
Total	88 M\$

Two items are requested for TBPOC approval:

1. Approval of the scope of work of work for the Temporary Oakland Touchdown Detour, including the temporary bicycle-pedestrian facility and supporting construction work.
2. Approval of the budget for the Temporary Oakland Touchdown Detour as shown in Table 1.

It is understood the TBPOC will continue to be kept informed of the progress of the TOTDD.

**Attachment(s):**

1. OTD Summary Schedule
2. OTD Bike Path Summary
3. Phases of the Temp OTD Detour for SFOBB Acceleration
4. Additional Visuals of the Temp OTD Detour

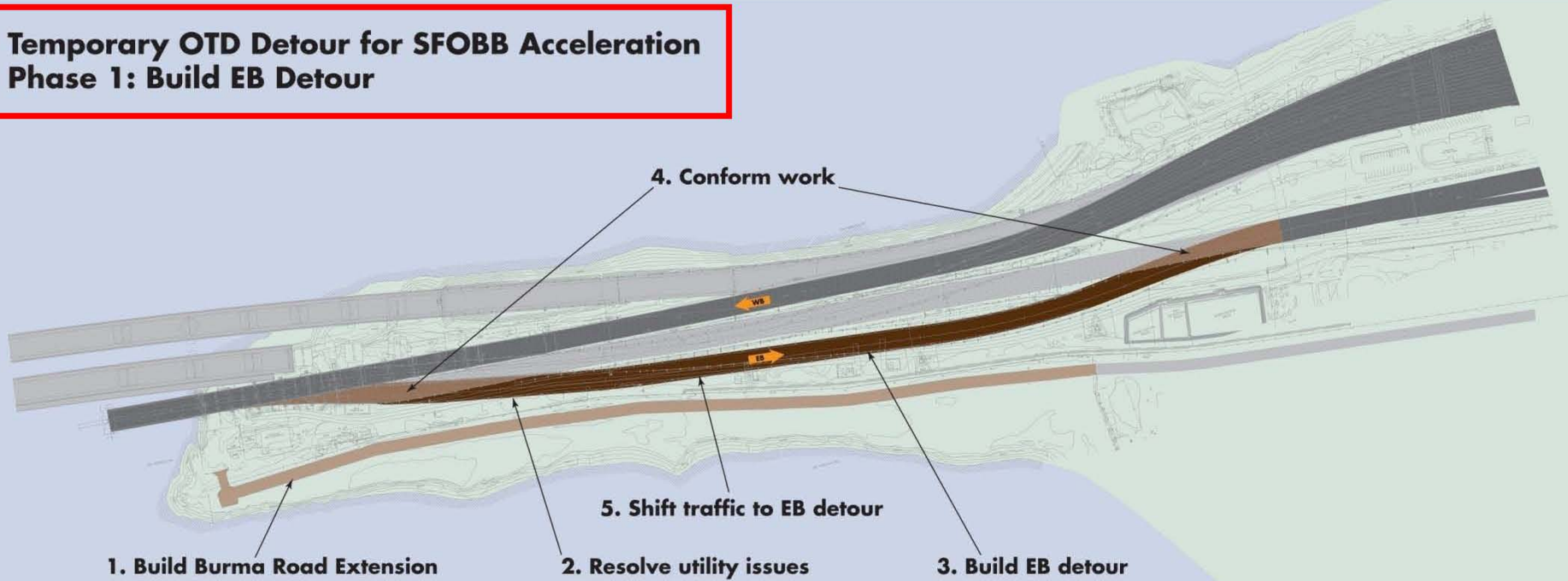


**OTD Bike Path Summary Rev1 1-24-2011 to Brian**  
**OTD Detour Summary PP**

Description	OTD Detour Costs
ROADWAY ITEM WORK	27,011,542
STRUCTURES ITEM WORK	11,179,870
TIME RELATED OVERHEAD (10%)	1,117,987
SUBTOTAL ITEM COSTS	12,297,857
MOBILIZATION (10%)	1,366,429
SUBTOTAL COMBINED ITEM WORK	13,664,286
SUPPLEMENTAL WORK ITEMS (5% of Item Work)	683,214
STATE FURNISHED ITEMS	-
TOTAL COMBINED ITEM WORK (Engineers Estimate Without Escalation or Contingencies)	41,359,042
ESCALATION TO CONSTRUCTION MIDPOINT (6/11/2011)	713,741
CONTINGENCIES (25%)	10,518,196
TOTAL CAPITAL COSTS	52,591,000
RIGHT OF WAY/PERMITS	8,000,000
SUPPORT COST DESIGN	4,000,000
SUPPORT COST CONSTRUCTION	11,000,000
RISK MANAGEMENT	12,500,000
TOTAL COST	88,091,000



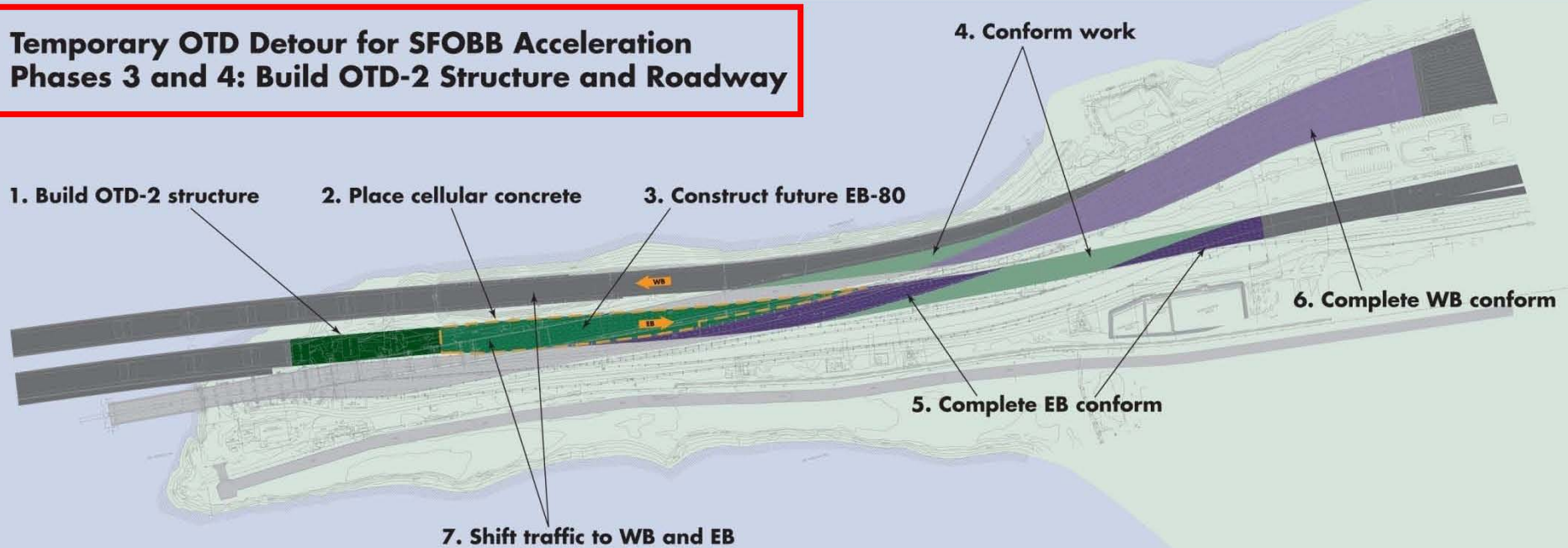
## Temporary OTD Detour for SFOBB Acceleration Phase 1: Build EB Detour



**Temporary OTD Detour for SFOBB Acceleration  
Phase 2: Build WB Detour**

- 
- The diagram illustrates the construction of a temporary one-way detour (OTD) for the San Francisco-Oakland Bay Bridge (SFOBB) during Phase 2. It shows a cross-section of the bridge and surrounding terrain. A blue line represents the new detour route, which is built along the existing bridge structure. A red line indicates the area to be demolished. Arrows labeled 'WB' and 'EB' show the direction of traffic flow. The steps are numbered 1 through 5, with arrows pointing to the corresponding locations on the diagram.
1. Complete bridge work
  2. Build WB detour
  3. Conform work
  4. Shift traffic to WB detour
  5. Demolish existing bridge

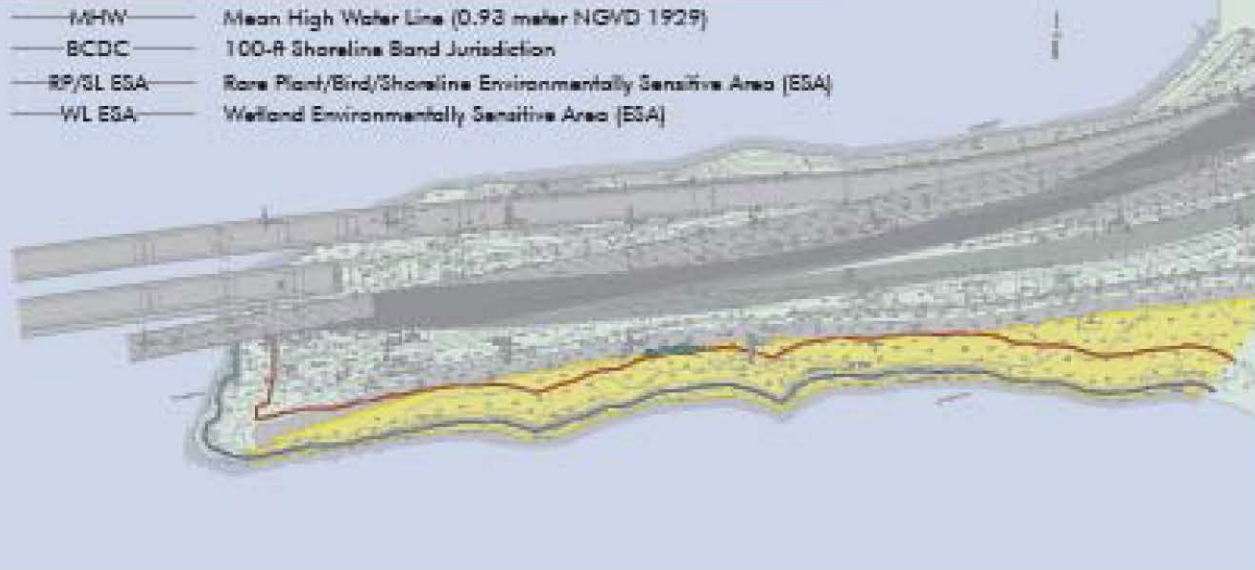
**Temporary OTD Detour for SFOBB Acceleration  
Phases 3 and 4: Build OTD-2 Structure and Roadway**





## Temporary OTD Detour for SFOBB Acceleration Environmental Features

- MHW — Mean High Water Line (0.93 meter NGVD 1929)
- BCDC — 100-R Shoreline Band Jurisdiction
- RP/SL ESA — Rare Plant/Bird/Shoreline Environmentally Sensitive Area (ESA)
- WL ESA — Wetland Environmentally Sensitive Area (ESA)



All Environmentally Sensitive Areas (ESA) shall be delineated with High Visibility ESA Boring and protected with appropriate sediment control Best Management Practices (BMPs).



The entire reach of Burns Road shall be protected as an Environmentally Sensitive Area (ESA) to avoid potential impacts to marsh (perennial, Alameda song sparrows, California Least Tern and potential abandoned nesting habitat. See graphics for limits of the Rare Plant/Bird/Shoreline ESA.



The seasonal wetland adjacent to Burns Road shall be protected as an Environmentally Sensitive Area (ESA). See graphics for the limits of the Wetland ESA.



# Upper Deck Fast Demolition

# Bicycle-Pedestrian Facility



# Bicycle-Pedestrian Facility

# Bicycle-Pedestrian Facility



## Prefabricated Units





## *Memorandum*

**TO:** Toll Bridge Program Oversight Committee (TBPOC)      **DATE:** January 26, 2011

**FR:** Bart Ney, Public Information Officer, Caltrans

**RE:** Agenda No. - 5b2  
Item- San Francisco-Oakland Bay Bridge Updates  
Oakland Touchdown Communications Plan Update

---

**Recommendation:**

For Information Only

**Cost:**

N/A

**Schedule Impacts:**

N/A

**Discussion:**

Public Information Officer Bart Ney will provide an update on the proposed Oakland Touchdown communications plan. The presentation will review the communications strategy and tactics that the Public Information Office will utilize to educate and inform the public and other stakeholders. The outreach campaign will focus on opening the westbound and eastbound lanes of the Oakland Touchdown simultaneously and the related temporary alignment change west of the Bay Bridge Toll Plaza.

**Attachment(s):**

Oakland Touchdown Detour Stakeholder and Media Outreach Action Plan



## *OAKLAND TOUCHDOWN DETOUR*

### *STAKEHOLDER AND MEDIA OUTREACH ACTION PLAN*

#### **OVERVIEW**

This report outlines the proposed outreach elements that will be implemented to inform stakeholder entities and the public about upcoming work on the Oakland Touchdown Detour, as part of the Bay Bridge Seismic Safety Projects. The purpose of this project is to keep the Oakland Touchdown II project off the critical path of the completion date for the new East Span and allow simultaneous openings of the new eastbound and westbound bridges. The existing Oakland approach will be replaced by temporary detours, allowing construction of the permanent approach structures. Simultaneous openings of the eastbound and westbound bridges will deliver seismic safety on the new East Span four to six months earlier than the current schedule, and will reduce the duration of time that the Yerba Buena Island detour is in use.

The outreach effort for this operation will build upon the successes and lessons learned from the previous operations on the West Approach, YBI Viaduct Replacement and the YBI Detour Tie-In, all of which required full deck closures of the Bay Bridge. Since this effort will not require a full closure in the Eastbound Direction it will not be necessary to use some of the larger elements of previous closure communications plans. Media buys and large banners hung on or near the bridge were mainstays of previous efforts but are not necessary for this operation. Although those elements will not be used and others will be scaled back as identified in this report, the Bay Bridge Public Information Office will continue to leverage past successes, conduct advance planning with event venues, distribute information to statewide audiences, leverage numerous online and social media channels, innovate and implement new communications tools and target travelers into and out of the Bay Area.

At the time of this draft it is not determined if the Westbound detour work will require a full deck closure. This communications plan covers both eastbound and westbound alignment change detour operations and may be amended to add additional work similar to what has been done in the past should a full deck closure be required for the westbound detour.

#### **Outreach & Public Communication**

From a communications standpoint the challenge will be to inform stakeholders and the public about necessary alignment changes and anticipated lane and potential deck closures of the bridge. An additional challenge will be to convey the reasoning and positive message, which created the detour operation itself. A communications plan that features some of the successful aspects of previous closures as well as new concepts to help deliver the complex messaging involved has been developed and proposed.

The dual message of (1) lane and potential deck closures, as well as (2) an immediate detour upon re-opening, can be a complex messaging challenge. Advanced tools and strategies are

**Oakland Touchdown Detour**  
**DRAFT STAKEHOLDER AND MEDIA OUTREACH ACTION PLAN**

called for to convey the key points of the message separately, thereby allowing a deeper and more precise saturation to targeted audiences.

### **Phased Campaign**

#### **February/March 2011: Detour Explained and Concurrent East Span Opening Announced**

A media outreach session will be held early to explain the need for the operation and how the public information team will encourage good working relationships with the media. Then a two-phased campaign that benefits from technological resources and outreach successes from past campaigns, and makes the website a dynamic and primary source for updates and information, will be implemented.

The campaign begins with the BayBridgeInfo.org micro-site focused on driver education to make all commuters well aware of the new alignment. This strategy should be implemented using simulations and visualization tools, and will encourage sharing of media among public at-large. Mobile phone and tablet applications are shareable resources that capitalize on the gee-whiz factor and use social network venues for cost-effective saturation of information. The video and app products, which connect back to BayBridgeInfo.org, engage the public automatically on the subsequent (and potential) closure campaign.

#### **May 2011: Eastbound Traffic Re-alignment**

The Department construction and design teams have determined that a full deck closure on the eastbound realignment will not be needed and that work will be accommodated during nighttime lane closures. With the bridge open the need for media buys and large collateral materials is reduced; however other communications strategies will need to be strong to ensure that Bay Bridge users get the message. A targeted closure campaign will be implemented that focuses on the lane closures and alternate routing off/to Bay Bridge commuters. The campaign will also coordinate messaging with other regional events/highway operations.

Following the general outreach media session held earlier in the year, a media availability will be held approximately one to two weeks ahead of the planned eastbound alignment change (est. May) to focus on that operation alone. A real time simulation is being developed based on the 3D models already generated that will allow users to navigate the detour virtually in advance of the actual traffic shift. Mobile versions of the simulation will be available from the BayBridgeInfo.org website, the Bay Bridge store on Apple iTunes and other venues still being developed. The use of the real-time simulator is planned to reach the audience using the bridge during weekend closures. This group tends to commute in the westbound direction to entertainment destinations in San Francisco. They are proficient with social media applications and will be encouraged to pass on the message to other users creating deeper value (impressions).

#### **January 2012: Westbound Traffic Re-alignment**

Current project estimates show that westbound Bay Bridge traffic will be shifted in January 2012. A media campaign and motorist information campaign will be developed to respond to the plan for this shift. Although at this time a full closure in the westbound direction has not been determined, the westbound alignment is anticipated to have minor to moderate driver impact. If a full closure is needed then this communications plan may be amended adding elements that have been successful in previous bridge closures. If the alignment change can be implemented without a deck closure then the westbound realignment outreach will be similar to what will be done for the eastbound re-alignment. A media availability will be held that directly focuses on the westbound operation details one to two weeks prior to the operation featuring a real time simulation of that alignment.



## SECTION ONE CRITICAL TALKING POINTS

### **Closure Overview**

In order to allow a more timely completion of the Bay Bridge Seismic Retrofit Project, a new detour is proposed on the Oakland side of the bridge that would shift traffic to the south to allow the construction of the OTD2 project earlier than previously contemplated and prior to the completion of the Self Anchored Suspension (SAS) Bridge. Doing so would allow for the opening of the new bridge in both directions when the Self-Anchored Suspension (SAS) Bridge is ready for traffic, instead of just the westbound, as currently contemplated.

Costs associated with the effort to complete this operation are an investment towards the goal of opening the new bridge and achieving greater public safety as soon as possible. It is estimated that construction of the detour will allow the earlier start of the OTD2 contract and that would result in a projected four to six month time savings over the original plan.

If a full bridge closure becomes necessary, once the operation has begun, the bridge cannot be reopened to traffic until the work is complete. Transportation alternatives will be in place should unanticipated delays occur causing the bridge to remain closed beyond the expected reopening date and time.

#### *Direct Talking Points*

- By implementing detours eastbound and westbound on the Oakland Touchdown portion of the Bay Bridge over the next two years, the entire bridge will be able to open to the public in both directions four to six months earlier than the previous schedule stated.
- These detours will allow a construction team to work between the existing and new Bay Bridges to complete work on the eastbound alignment of the new bridge that would not be possible without detouring traffic.
- The costs associated with this work are an investment in bringing seismic safety faster to motorists using the bridge and mitigating construction risks that exist the longer that work continues.
- The costs associated with this work are projected to remain in the Toll Bridge Program contingency and should not require additional budget allocation to the contingency fund.

### **Access & Transportation Alternatives**

Full bridge closures are not currently planned to implement the detours for the Oakland Touchdown. The Bay Bridge Communications team including representatives from Caltrans, BATA and the CTC will coordinate directly with the construction team and keep local transportation agencies informed should any changes occur that may require regional planning that may effect their operations.

The MTC 511 system will serve as the primary resource for trip planning and up to date traffic information. Any revised transit schedules will be available through 511.

Regular communication will be maintained with other bridges (Golden Gate, San Mateo-Hayward, Dumbarton, Richmond-San Rafael) on traffic and operational progress during the operation.

**Oakland Touchdown Detour**  
**DRAFT STAKEHOLDER AND MEDIA OUTREACH ACTION PLAN**

Media will be updated continuously of progress by press releases, construction information and graphics, and live PIO updates.

BayBridgeInfo.org and a dedicated micro-site will be the nexus for construction updates and information, and 511 will be referenced as the official source for trip planning and traffic conditions.

Changeable message signs will be used to inform motorists about the upcoming closures in the Bay Area region, and where appropriate beyond the region.

A telephone hotline will be maintained throughout the operation.

## **SECTION TWO**

### **ELECTED OFFICIALS OUTREACH**

Caltrans will inform elected officials directly, regarding the upcoming detour and related closure.

#### **2.1    Outreach**

Caltrans will inform regional and statewide decision makers and stakeholders through direct phone contact to their offices, E-mail and E-alerts. If requested the Bay Bridge PIO team will hold briefing presentations to explain the operations and update audiences on project progress.

#### **2.2    E-Alert**

Electronic alerts will be sent to all elected officials and staff contacts, providing information on the upcoming demolition and link to a Fact Sheet that can be viewed electronically, shared, or printed in hardcopy. The first notification will serve as advance notice, and a second E-Alert will serve as a reminder a few days prior to the beginning of the operation.

## **SECTION THREE**

### **MEDIA OUTREACH**

Caltrans will inform the media prior to, during and after all major elements of the work.

#### **3.1    Media Outreach Sessions**

Media in the San Francisco Bay Area and in surrounding media markets will be invited to an educational outreach session during February 2011, up to four months in advance of the upcoming work. Separate media outreach sessions will be held regionally or in Sacramento or Southern California upon direction from the TBPOC. Graphics, video and informational Fact Sheets will be distributed. These sessions are intended to raise media awareness, inform media of upcoming work, provide current contact information, foster collaborative working relationships, and solicit feedback on how to improve our outreach.

#### **3.2    Press Releases**

Caltrans will distribute a general press release in February and prior to each of the weekend closures. A media press release will be issued at the completion of the operation to keep media updated on the completion and re-opening of the Bay Bridge.

### **3.3 Public Information Officer Live Update**

The Caltrans Bay Bridge Public Information Officer (PIO) will be on-site throughout the weekend operation. A media hold location will be made available throughout the weekend at the Bay Bridge Public Information Office located at 311 Burma Rd. in Oakland. PIO staff will provide escorted and limited access to the operation. Live updates to the media will be facilitated at this location. Caltrans will develop talking points ahead of time and construction staff will provide real-time construction updates to the PIO for sharing with media.

## **SECTION FOUR PUBLIC OUTREACH**

Caltrans will inform the public through a broad outreach campaign designed to inform as many potential weekend users of the Bay Bridge as possible. The targeted user groups will include Bay Area motorists, regional commuters, goods movement industries, out-of-town holiday travelers, the general public and immediate neighborhood residents. Notices will be provided months in advance in some cases.

### **4.1 Public Service Announcements**

Paid public service announcements will be created and provided through the Bay Bridge PIO, BayBridgeInfo.org and the project's social media applications. No media spots will be purchased for these operations. (Media Buying may be reconsidered should a full deck closure be needed for the westbound realignment.)

### **4.2 Website**

All outreach materials will direct stakeholders to the BayBridgeInfo.org website for daily information and updates about the work, and the associated ramp and deck closures. This includes graphical and text information on the work and the schedule; information on the transit alternatives available, including links to each transit operator and to 511; links to radio and television announcements, and other informational materials. The website includes a comment form for users to send questions or feedback 24 hours/day as well as contact phone and address information for the Public Information Office and telephone hotline.

The BayBridgeInfo.org micro-site will focus on driver education to make all commuters well aware of the new alignment. This strategy should be implemented using simulations and visualization tools, and will encourage sharing of media among public at-large. We will focus resources on expanding micro-site to debut four to six months prior to the detour, and to develop mobile phone and tablet apps (shareable resources that capitalize on the gee-whiz factor), use social networks for cost-effective saturation of the video and app products, which also connect back to BayBridgeInfo.org, engaging the public automatically on the closure campaign.

### **4.3 External Website Information**

Outreach efforts for the closure will focus on increasing avenues of electronic communication. Collateral materials will be made available via download from the BayBridgeInfo.org website or through direct communication with the Bay Bridge PIO. Methods of communication include links and general information of closure dates and alternative forms of transportation.

#### **4.4 Mailers and Flyers**

Caltrans will develop informational materials, including a Fact Sheet, for distribution electronically, through the mail and at public locations near the upcoming work. The Fact Sheet includes dates and times of work and the associated deck closures, the rationale for conducting this operation, transit and driving alternatives, as well as background information on the Bay Bridge Seismic Safety Projects.

#### **4.5 Social Media**

Social media on the Internet has become a fundamental source for many users to interact and receive their news and information. Social Media Applications outlined for this campaign include: Twitter, Facebook, YouTube and Google. Selecting key websites to link with BayBridgeInfo.org will reach a greater audience with less effort.

A Bay Bridge Facebook page will be established for the first time prior to the eastbound realignment detour. This social media application adds significant potential for both delivering the current message and increasing regular follower traffic to the project's information resources.

#### **4.6 Bay Bridge Newsletter**

The Bay Bridge PIO will produce a newsletter prior to the closure for electronic and local distribution. Recipients of this will come largely from a large database of contacts consisting of elected officials, key stakeholders, Bay Area businesses, project staff and community partners and residents.

#### **4.7 Local Notification**

Presentations and notices will be given to residential or commercial locations that might be specifically affected by the work or that request them. Residents of Yerba Buena and Treasure Island will be contacted. The 24-hour telephone hotline also serves to provide nightly construction updates and receive questions and comments.

#### **4.8 Telephone Hotline**

Caltrans provides a telephone hotline at the Public Information Office for motorists to receive daily updates on construction-related lane and ramp closures and other construction information, and for local affected residents and businesses to have direct contact with PIO staff.

#### **4.9 Changeable and Electronic Message Signs (CMS)**

Caltrans will engage a statewide network of electronic and changeable message signs two weeks prior to the closures to alert motorists. Signs will be especially intensive in the Bay Area; Caltrans will work closely with Districts throughout the state to ensure that the message will be highly visible along major thoroughfares.



#### **4.10 Highway Advisory Radio (HAR)**

The Bay Bridge Public Information Team will script messaging and provide it to the Caltrans operations unit for posting on the HAR frequencies.

#### **4.11 E-Alert**

An electronic alert (E-Alert) will be created and sent to elected officials, stakeholders and the public. Thousands of project contacts will receive the E-Alert well in advance of the closures, providing information on the upcoming demolition and linking to a Fact Sheet that could be viewed electronically, shared, or printed in hardcopy. An additional (reminder) E-Alert will be sent a few days before the closure.

#### **4.12 Project and Agency Coordination**

Caltrans will coordinate with local transportation agencies throughout the year regarding the OTD Detour operation. Several other regional closures not related to the Bay Bridge are being planned in 2011. Direct coordination will be made with the Presidio Parkway Project on Doyle Drive near the Golden Gate Bridge and the Dumbarton Bridge Project teams to assure that closures of our regional bridges are being planned and communicated well.

#### **4.12 MTC 511 Coordination**

Caltrans will continue to collaborate with MTC staff responsible for the 511 Transit Information System on the upcoming work and the changes to transit schedules because of the detour operations. MTC incorporates the revised schedule information on their voice-activated system and the MTC 511 ([www.511.org](http://www.511.org)) website. Furthermore, MTC posts a graphic banner announcing the Bay Bridge Construction and Closures on the homepage pointing users to [BayBridgeInfo.org](http://BayBridgeInfo.org) for information.

Caltrans will make use of MTC's informational kiosks at locations such as the Embarcadero BART Station and the Baycrossings store at the Ferry Building as an additional method of communication.

## **SECTION FIVE CALTRANS INTERNAL COORDINATION**

### **5.1 Command Center**

Caltrans staff will continue to hold regular meetings to review ongoing public issues relating to the project. During the operation, a Command Center will be established for all key agencies to be able to coordinate closely together. Traffic operations and the Public Information team will maintain a direct line of communication to provide timely reports of conditions during the closures.

## **5.2 District 4 Coordination**

### Public Affairs Office

The Bay Bridge Public Information staff communicates regularly with the District 4 Public Affairs staff to help ensure that district staff is informed and to identify potential areas for collaboration. A monthly meeting to coordinate major regional facility closures in the district will begin in February.

### District Director's Office

Presentations on the public outreach strategy and implementation elements will be made to the District Director and Director's Staff as directed.

### Traffic Operations

Caltrans holds intermittent meetings between key District operations staff on all of the projects along the Bay Bridge Corridor. The Traffic Management Center addresses the anticipated needs of the operation by joining the Command Center, and by assisting on the public outreach effort through the operational elements, such as Changeable Message Signs.

## **5.3 Agency and Executive Staff**

CT Headquarters, including the Director and the TBPOC agencies, are given a presentation on the scope and impacts of the work prior to the beginning of work. The TBPOC will review the Outreach Action Plan in April 2009. Caltrans Headquarters (Lane Closure Review Committee) will be briefed in April 2009. Regular communications and updates on the public outreach strategy and implementation will be made to the Public Affairs Office, the Caltrans Director and Director's Staff.

## **SECTION SIX PROPOSED PRESENTATION CALENDAR**

February 2011	Media Outreach on realignment
April/May 2011	Eastbound Alignment campaign
December/January 2011/12	Westbound Alignment campaign

## *Memorandum*

**TO:** Toll Bridge Program Oversight Committee (TBPOC)      **DATE:** January 26, 2011

**FR:** Steven Hulsebus, Toll Bridge Program Design Manager, Caltrans

**RE:** Agenda No. - 5c  
San Francisco-Oakland Bay Bridge Updates  
Item- Temporary Bicycle/Pedestrian Access to Yerba Buena Island

---

**Recommendation:**

For Information Only

**Cost:**

\$ 3 million approx

**Schedule Impacts:**

N/A

**Discussion:**

As a follow up to the temporary bicycle/pedestrian access to Yerba Buena Island (YBI) at the Seismic Safety Opening information that was presented at the December 9, 2010 TBPOC meeting, a narrower path was evaluated and how it would affect the travelled lanes at YBI. An exhibit comparing this new alternative to the previous one and to the currently proposed construction in this area (without a public access path) will be shown at the February 3, 2011 TBPOC meeting.

Pertinent information of this new alternative:

- Path is 5' wide (minimum width for ADA requirements)
- Caltrans minimum for a path on a bridge is 8'
- Temporary on-ramp merge improved (this can be done with or without a path)
- 8' shoulder adjacent to the path is provided
- 11' lanes
- Variable width shoulder on the left of travelled lanes
- Steep grade connecting local road on YBI to temporary on-ramp (14% at one point)

In addition, the proposed redevelopment of YBI shows how they plan to modify the traffic circulation on YBI including providing for public access. An exhibit showing this plan will also be shown at the February 3, 2011 meeting.

Findings from the future YBI traffic circulation plan:

- Public access from the bridge to YBI will primarily be directed to Southgate Road and then along Macalla Road to Treasure Island and vice versa from YBI to the bridge
- There will be a counterclockwise one-way bicycle path (class III in many areas) on Treasure Island Road and Hillcrest Road i.e. coming down the long grade of Hillcrest Road to the path on the bridge

The two bike path options (5' path and 8' path) were discussed with the Caltrans Traffic Safety Office Chief and the Caltrans Headquarters Project Development Coordinator for District 4 and their feedback is summarized below:

- Safety:
  - The reduction of lane width and shoulder width combined with the very short on-ramp merge creates a safety concern for the merging vehicles
  - The 5' wide path is too narrow for path users
  - Poor sight distance on the path due to many curves
  - Adding the bicycle/pedestrian path is not recommended
- Geometric standards:
  - Compromising standard lane and shoulder width for a bicycle/pedestrian path is not recommended

It has also been learned that the City of San Francisco will not make any improvements to the local roads on Yerba Buena Island to accommodate bicyclists or pedestrians at the time of the seismic safety opening.

Information learned from this new alternative:

- Continue to have non-standard features for the new bridge traffic as a result of the public access path in the temporary condition
- The length of the on-ramp merge can be improved over the currently proposed plans
- Access to and from the public access path and YBI has a steep grade
- As identified before, local roads are not capable of handling the public from the bike path in the interim situation
- There are no plans from the city to improve the local roads at the time of the seismic safety opening
- Caltrans Safety and Geometric Office Chiefs do not recommend the bicycle/pedestrian path (either 5' or 8')

**Attachment:**

N/A



## *Memorandum*

**TO:** Toll Bridge Program Oversight Committee (TBPOC)      **DATE:** January 26, 2011

**FR:** Mike Forner, SFOBB District Division Chief, Caltrans

**RE:** Agenda No. - 6a

Item- Antioch and Dumbarton Bridge Seismic Retrofit Updates  
Updates

---

**Recommendation:**

For Information Only

**Cost:**

N/A

**Schedule Impacts:**

N/A

**Discussion:**

**Antioch Bridge:**

- Time Elapsed: 37% (97 day time extension pending)
- Work Completed: 33%

Update of on-going field work is as follows:

- Suspended platform installation completed at 18 of 32 total piers.
- Stair tower installation completed at 20 of 31 total piers.
- Drilling for Drill and Bond activity completed at 10 of 20 total piers.
- Placing dowels for Pier Concrete Pedestals completed at 10 of 20 total piers.
- Coring for bent cap Post-tensioning completed at 21 of 38 total piers.
- Placing jacking stiffeners completed at 6 of 41 total piers.
- Fabrication of seismic bearings completed for 22 of 82 total bearings.
- Installation of seismic bearings completed for 6 of 82 total bearings.
- Pier 4 and 6 are under temporary jacking supports while replacing bearings.
- Fabrication completed for 85 of the 116 total steel column casings.
- Cross bracing fabrication 18% complete.

**Dumbarton: Bridge:**

- Time Elapsed: 14%
- Work Completed: 14%

Update of on-going field work is as follows:

- Shop drawings for Piers 17, 18 & 19 jacking plan submitted. Pier 17 returned unapproved.
- Design finalized for seismic joint modifications. CCO being processed.
- Anchor plans for water work to USCG for review & approval.
- Installation of work platforms scheduled for early February.
- West end bridge removal for Trestle Pedestal construction completed. East end removal on-going.
- Installation of 48" steel pipe piles completed.
- Construction of foundations & orthogonal columns at east approach on-going.
- Relocation of bridge lighting & TOS on-going.
- Pumping plant foundation work on-going.

**Attachment(s):**

N/A

## *Memorandum*

**TO:** Toll Bridge Program Oversight Committee (TBPOC)      **DATE:** January 26, 2011

**FR:** Dina Noel, Assistant Deputy Director Toll Bridge Program, CTC

**RE:** Agenda No. - Item 6b

Item- Antioch and Dumbarton Bridge Seismic Retrofit Updates  
Antioch Bridge Retrofit Contract Change Order No. 6-S0 – Seismic  
Bearing Installation Sequencing & Restrainer Brackets

---

**Recommendation:**

For Information Only

**Cost:**

CCO 6-S0: \$3,261,688.00

**Schedule Impacts:**

97-Working Day Contract Extension

**Discussion:**

**CCO 6-S0 in the amount \$3,261,688** is necessary to provide for the sequenced installation of the 82 EA seismic isolation bearings in order to avoid potential damage to the bearings during the installation process. Restrainer brackets are also added at 6 locations in order to limit excessive thermal movement of the bearings. The change order provides for a 97-working day time extension as a result of these changes which will extend the contract completion into February of 2012. Compensation includes extended time-related overhead, the direct costs of the changes and extended project equipment and storm water pollution prevention measure resulting from the time extension.

This change order was approved at a cost not to exceed \$3,700,000 at the December 2010 TBPOC meeting. The finalized change order is now being presented as a follow up to this approval.

**Attachment(s):**

1. Draft CCO: 6-S0
2. Draft CCO Memorandum: 6-S0
3. Antioch Bridge Retrofit Budget Balance Beam, December 31, 2010
4. December 1, 2010 TBPOC Memo
5. Draft December 9, 2010 TBPOC Meeting Minutes

**CONTRACT CHANGE ORDER**

Change Requested by: Engineer

<b>CCO: 6</b>	<b>Suppl. No. 0</b>	<b>Contract No. 04 - 1A5214</b>	<b>Road</b> CC,Sac-160- 0.8/1.3,L0.0/L1.3	<b>FED. AID LOC.:</b> NO FED AID
---------------	---------------------	---------------------------------	--	----------------------------------

**To: CALIFORNIA ENGINEERING CONTRACTORS INC**

You are directed to make the following changes from the plans and specifications or do the following described work not included in the plans and specifications for this contract. **NOTE: This change order is not effective until approved by the Engineer.**

Description of work to be done, estimate of quantities and prices to be paid. (Segregate between additional work at contract price, agreed price and force account.) Unless otherwise stated, rates for rental of equipment cover only such time as equipment is actually used and no allowance will be made for idle time. This last percentage shown is the net accumulated increase or decrease from the original quantity in the Engineer's Estimate.

**Extra Work at Lump Sum:**

Perform the following work pertaining to the installation of the 82 EA friction pendulum bearings on the Antioch Bridge (Bridge No. 28-0009):

- 1) Fabricate and install at 6 locations longitudinal restrainer brackets as shown on Sheets No. 3 through 6 of this change order.
- 2) Install the friction pendulum bearings in accordance with the revised installation sequence as shown on Sheet No. 6 of this change order.

A determination of the delay in the completion of the Contract due to this change order has been made in accordance with Section 10-1.19, "Progress Schedule (Critical Path Method)," of the Contract Special Provisions and Section 8-1.07, "Liquidated Damages," of the Standard Specifications.

The Contractor shall be granted a 97 working day time extension for these delays.

This change order resolves all project time impacts incurred prior to September 24, 2010 and no additional time extension shall be granted through this date. Any delays associated with Change Order No. 7 shall be considered concurrent with the delays incurred under this change order and no additional time extension shall be granted.

**Adjustment of Compensation at Agreed Lump Sum:**

Provide compensation to the Contractor for additional costs associated with furnishing and installing the longitudinal restrainer brackets and installing the friction pendulum bearings in accordance with the revised installation sequence as provided for under this change order and for additional costs resulting from the 97 working day time extension granted under this change order. For these costs, the Contractor shall receive an agreed lump sum of \$1,321,668.00.

**Adjustment of Compensation at Agreed Unit Price:**

In accordance with Section 10-1.20 "Time-Related Overhead" of the Contract Special Provisions, the lump sum price for Contract Bid Item No. 5, "Time-Related Overhead" shall be adjusted by \$20,000.00 per working day for each of the 97 working days granted under this change order.

**Cost of Adjustment of Compensation at Agreed Unit Price:****Item 5 Time-Related Overhead:**

97 days x \$20,000.00 per day (Increase 38.33%) = \$1,940,000.00

Except for costs specifically excluded herein, the compensation provided under this change order constitutes full compensation for all additional costs, including all markups, as a result of both the changes implemented under this change order and the 97 working day time extension granted under this change order. These costs include but are not limited to a additional direct and indirect labor, equipment and material costs including furnishing and installing the restrainer brackets the revisions to the friction pendulum bearings installation sequence, extended time-related overhead, extended storm



**CONTRACT CHANGE ORDER**

Change Requested by: Engineer

<b>CCO: 6</b>	<b>Suppl. No. 0</b>	<b>Contract No. 04 - 1A5214</b>	<b>Road</b> CC,Sac-160- 0.8/1.3,L0.0/L1.3	<b>FED. AID LOC.:</b> NO FED AID
---------------	---------------------	---------------------------------	--	----------------------------------

water pollution prevention measures and extended land and marine based equipment. No additional compensation shall be paid for any impacts resulting from this change order except for those specifically excluded.

Any additional bird monitoring costs resulting from this change shall be compensated under Change Order No. 22.

Any future costs or delays pertaining to Section 5-1.13 "Bird Protection" of the Contract Special Provisions that are incurred as a result of the changes or time extension provided under this change order are deferred.

Any future costs or delays pertaining to impacts to the removal of the access road on Sherman Island due to the as-planned work being extended beyond the May 1 to September 30, 2011 ground disturbing activity window as a result of the time extension granted under this change order are deferred.

Estimated cost of Extra Work at Lump Sum .....\$3,261,668.00

Estimated Cost: Increase ☒ Decrease ☐ **\$3,261,668.00**

By reason of this order the time of completion will be adjusted as follows: 97 days

**Submitted by**

<b>Signature</b>	<b>Resident Engineer</b> William Howe	<b>Date</b>
------------------	--	-------------

**Approval Recommended by**

<b>Signature</b>	<b>Construction Engineer</b> William Howe	<b>Date</b>
------------------	--	-------------

**Engineer Approval by**

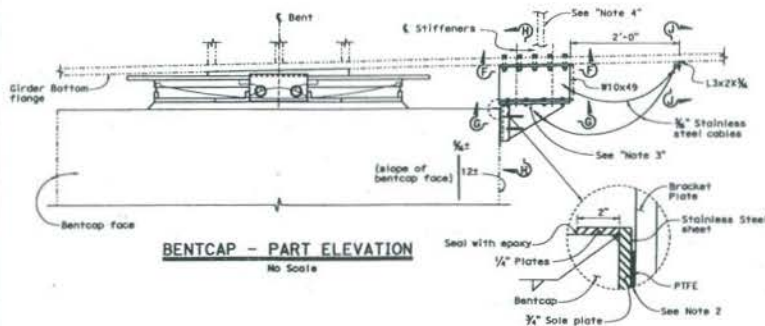
<b>Signature</b>	<b>Construction Manager</b> Douglas Coe	<b>Date</b>
------------------	--	-------------

We the undersigned contractor, have given careful consideration to the change proposed and agree, if this proposal is approved, that we will provide all equipment, furnish the materials, except as may otherwise be noted above, and perform all services necessary for the work above specified, and will accept as full payment therefor the prices shown above.

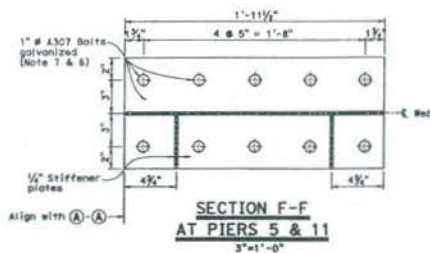
**NOTE: If you, the contractor, do not sign acceptance of this order, your attention is directed to the requirements of the specifications as to proceeding with the ordered work and filing a written protest within the time therein specified.**

**Contractor Acceptance by**

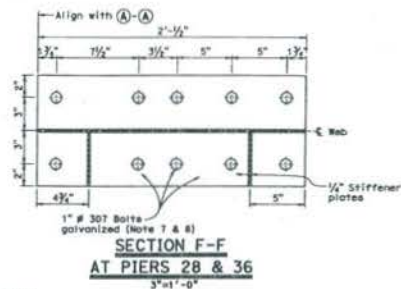
<b>Signature</b>	<b>(Print name and title)</b>	<b>Date</b>
------------------	-------------------------------	-------------



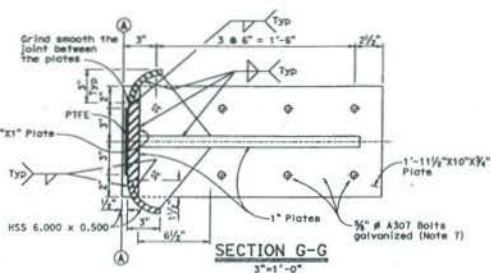
**BENTCAP - PART ELEVATION**  
No Scale



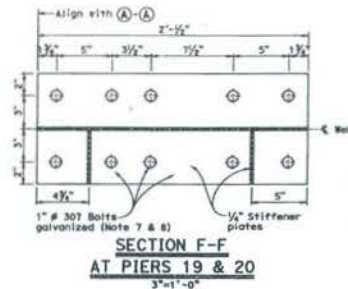
**SECTION F-F**  
**AT PIERS 5 & 11**  
3'-1'-0"



**SECTION F-F**  
**AT PIERS 28 & 36**  
3'-1'-0"



**SECTION G-G**  
3'-1'-0"



**SECTION F-F**  
**AT PIERS 19 & 20**  
3'-1'-0"

**NOTES:**

1. The Contractor shall verify all controlling field dimensions before ordering or fabricating any material.
2. Vertical face of bracket angles shall be in full contact with the vertical plate attached to the bentcap at the time of installation. However, leave 1 inch of gap between the face of PTFE pad and the face of the stainless steel sheet at Piers 19 and 20.
3. Shim as necessary (between W beam segment and angle bracket) to make PTFE pad parallel to the stainless steel sheet surface.
4. Location of existing stiffeners vary adjacent to each pier.
5. For "SECTION H-H" and "SECTION J-J", see "LONGITUDINAL RESTRAINING BRACKET DETAILS NO. 2" sheet.
6. Longitudinal Restraining Brackets shall be installed prior to releasing the restraining system of the isolation bearings.
7. Use phenolic washers of bolt heads and nuts, as well as locknuts.
8. Field drilling is permitted for the top flange of W10x49 segment.

Plan No.	Install on Bentcap face
5	NORTH
11	NORTH
19	SOUTH
20	NORTH
28	SOUTH
36	SOUTH

**NOTE:**  
Longitudinal Restraining Brackets shall be installed only at the piers indicated in the table

**LEGEND:**  
--- Indicates Existing  
— Indicates New

DIST.	COUNTY	ROUTE	PROJECT
04	CC, SAC	160	
REGISTERED CIVIL ENGINEER		DATE	
11-16-09		PLANS APPROVAL DATE	
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.			
To get to the California web site, go to: <a href="http://www.dot.ca.gov">http://www.dot.ca.gov</a>			

DESIGNER	Tony P. Lin	CHECKED	Wally Best	STATE OF CALIFORNIA	DESIGNER	Wally Best	PROJECT NO.	28-0008	ANTIOCH BRIDGE SEISMIC RETROFIT
DETAILS	Carlo Canino	CHECKED	Wally Best	DEPARTMENT OF TRANSPORTATION	DESIGN BRANCH	8	DATE	0.8	LONGITUDINAL RESTRAINING BRACKET DETAILS NO. 1
QUANTITY	Tony Best	CHECKED	Wally Best		CU 04253	EA 1A5211	DATE		

**SUPPLEMENTAL SHEET**  
**CONTRACT CHANGE ORDER NO. 6**  
**SHEET 3 OF 6**

FILE => 88-0008-z-1 (angbruchstett.de)

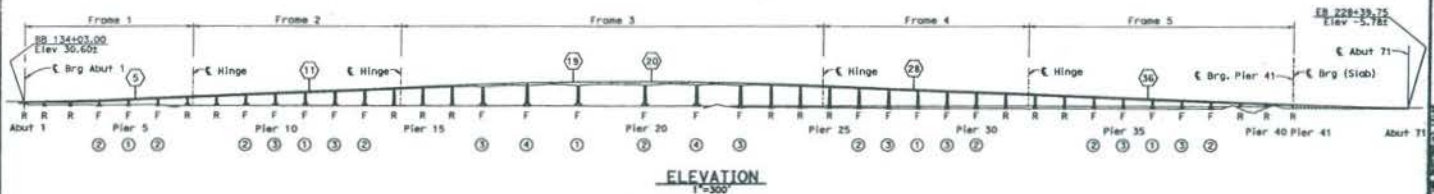
# BEARING INSTALLATION SEQUENCE NOTES:

- Existing bearings that are released (R) can be replaced in any order.
- At frame 1, 2, 3, 4 and 5, replace the fixed bearings (F) adjacent to the longitudinal restrainer bracket location with corresponding isolation bearing first and then install the longitudinal restrainer bracket. Replace the remaining fixed bearings in a frame starting with the bearings located farthest away from the longitudinal restrainer bracket location, as shown in the diagram below.
- At Pier 19 and 20 install longitudinal restrainer brackets with 1" gap. Temporary filler shall be installed at these restrainers to assure fixity at pier 19 and 20 until all other bearings are replaced in frame 3. Replace the bearings in the sequence shown in the diagram below.

SHEET	COUNTY	ROUTE	POST MILE	PROJECT NO.
04	CC, SOC	160	1.0/1.1/1.2	168
DESIGNED BY		DATE	8-3-09	
CHECKED BY		DATE	8-3-09	
APPROVED BY		DATE	8-3-09	
PLANS APPROVAL DATE		8-3-09		
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.				
Go get to the California web site, go to: <a href="http://www.dot.ca.gov">http://www.dot.ca.gov</a>				

## LEGEND:

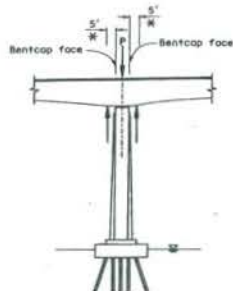
- Location of (N) restrainers bracket
- Fixed Bearing Replacement Sequence
- Existing Fixed Bearing
- Existing Released Bearing (Free to Move)



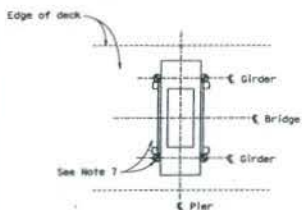
SUPPLEMENTAL SHEET  
CONTRACT CHANGE ORDER NO. 6  
SHEET 5 OF 6

DESIGN	BY	DATE	STATE OF CALIFORNIA	SECTION OF ENGINEERING SERVICES	PROJECT NO.	ANTIOCH BRIDGE SEISMIC RETROFIT
DETAILS	BY	DATE	DEPARTMENT OF TRANSPORTATION	STRUCTURAL DESIGN	28-0009	BEARING INSTALLATION SEQUENCE
QUANTITY	BY	DATE	CU 04253	DESIGN BRANCH	8	
			EA 145211			



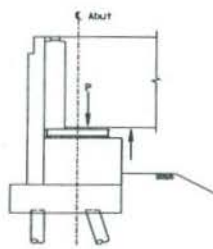


**ELEVATION**  
No Scale

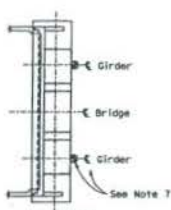


**PLAN**  
No Scale

**JACKING POINTS AT PIERS**



**ELEVATION**  
No Scale



**PLAN**  
No Scale

**JACKING POINTS AT ABUTMENTS**

NOTE: Pier 41 similar

REVISION	DATE	DESCRIPTION	BY	CHK
1	11-16-09	Note No. 12 Deleted	PPC	MB/CC
2	11-16-09	REVISION(S) DESCRIPTIONS	MB	ON/CC
3	11-16-09	REVISION(S) DESCRIPTIONS	MB	ON/CC

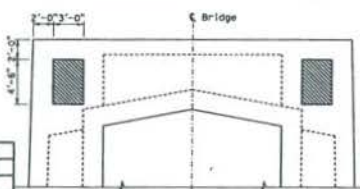
CONTRACT CHANGE ORDER NO. 6  
SHEET 6 OF 6

**TEMPORARY SUPPORT NOTES:**

1. Initial Jacking Loads are the estimated vertical forces to be applied to the structure at the jacking points to achieve the displacement needed to free and remove the existing bearings. Initial jacking loads are estimated from existing superstructure Dead Loads. Jacking system capacity shall include superstructure Dead Load, Live Load + Impact and Construction Loads.
2. Minimum Temporary Support Vertical Design Load shall be 1.5 times Initial Jacking Loads plus 1.0 times Live Load with Impact plus 1.5 times Construction Loads.
3. Temporary Supports shall be designed to resist a lateral load equal to 15% of the combination of Initial Jacking Loads plus Live Load plus Impact plus Construction Loads applied in any horizontal direction at the top of the Temporary Supports.
4. Temporary Supports shall be designed for a maximum lateral displacement of  $\frac{1}{4}$ " at the Lateral Load specified in note 3 above.
5. Jacking loads at any one pier shall be applied simultaneously and at equal distance from each side of bentcap face.
6. After required construction is complete, release all jacks simultaneously.
7. Jacking points as shown on "Jacking Points at Pier" and "Jacking Points at Abutments" are for load location only and do not depict a design requirement. Contractor's final design for Temporary Support and Jacking Systems are subject to approval of the Engineer.
8. Jacking shall be performed from Temporary Supports.
9. Pier Bracings shall be installed, bentcaps post-tensioned and Bearing Stiffeners installed prior to Jacking.
10. Adjacent Piers are not allowed to be jacked at the same time.
11. Only a maximum of two Piers per frame shall be jacked or be under Temporary Support at the same time.
12. All the bearing bearings installed shall be restrained against any displacement until all bearings are replaced. Alternative procedure shall be submitted for Engineer's Approval.
13. Coring through bentcap is permitted to attach Temporary Supports Subject to Approval of the Engineer. See the diagram for "PERMISSIBLE AREA FOR CORING" for limits of coring.

**NOTES:**

1. The Contractor shall verify all controlling field dimensions before ordering or fabricating any material.
2. For General Notes and Symbols see "Index to Plans" sheet.



**PIER FRONT ELEVATION**  
**PERMISSIBLE AREA FOR CORING**  
No Scale

DATE	COUNTY	ROUTE	POST MILES	TOTAL PROJECT MILES	THE PROJECT NO.
04	CC, SOC	160	0.871, 3	10.041, 3	1680

11-16-09  
PLANS APPROVAL DATE

REGISTERED CIVIL ENGINEER DATE

11-16-09

100% FILED

11-16-09

11-16-09

11-16-09

**TEMPORARY SUPPORT LOAD TABLE**

Pier No.	PI/GIRDER	
	Initial Loads (Kips)	Live Load + Impact (Kips)
Abut 1	270	260
2	550	480
3	1100	550
4	1120	550
5	1120	550
6	1120	550
7	1120	550
8	1120	550
9	1120	550
10	1120	550
11	1120	550
12	1120	550
13	1120	550
14	1120	550
15	1120	550
16	1050	550
17	1680	665
18	1900	725
19	2300	836
20	2300	835
21	1900	725
22	1680	660
23	1050	550
24	1120	550
25	1120	550
26	1120	550
27	1120	550
28	1120	550
29	1120	550
30	1120	550
31	1120	550
32	1120	550
33	1120	550
34	1120	550
35	1120	550
36	1120	550
37	1100	550
38	1190	550
39	1010	550
40	1160	550
41	375	290

- LEGEND:**
- ②/1 Indicates Permissible locations for jacking
  - P1 Vertical force at existing bearing
  - Indicates Permissible Areas of Coring to attach Temporary Support System for jacking

DESIGN	Yong Pili Ete	DESIGN	John Burke
DETAILS	Carlo Doming	DETAILS	John Burke
QUANTITY	Travis Samsel	QUANTITY	John Burke

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 8

PROJECT NO.  
28-0009  
SHEET NO.  
0.8

ANTIOCH BRIDGE SEISMIC RETROFIT  
TEMPORARY SUPPORT PLAN

CU 04253  
E.A. 145211

11-16-09

11-16-09

11-16-09

11-16-09

11-16-09

11-16-09

11-16-09

11-16-09

**CONTRACT CHANGE ORDER MEMORANDUM**

DATE: 11/30/2010 Page 1 of 2

TO: DOUG COE /			FILE: <b>E.A.</b> 04 - 1A5214	
FROM: WILLIAM HOWE			<b>CO-RTE-PM</b> CC,Sac-160-0.8/1.3,L0.0/L1.3	
<b>FED. NO.</b> NO FED AID				
CCO#: <b>6</b>	SUPPLEMENT#: <b>0</b>	Category Code: <b>AXZZ</b>	CONTINGENCY BALANCE (incl. this change) <b>\$273,022.50</b>	
COST: <b>\$3,261,668.00</b> INCREASE <input checked="" type="checkbox"/> DECREASE <input type="checkbox"/>			HEADQUARTERS APPROVAL REQUIRED? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
SUPPLEMENTAL FUNDS PROVIDED: <b>\$300,000.00</b>			IS THIS REQUEST IN ACCORDANCE WITH ENVIRONMENTAL DOCUMENTS? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
<b>CCO DESCRIPTION:</b> Brackets & Sequence of Bearings			<b>PROJECT DESCRIPTION:</b> Bridge Seismic Retrofit	
Original Contract Time: <b>300</b> Day(s)	Time Adj. This Change: <b>97</b> Day(s)	Previously Approved CCO Time Adjustments: <b>0</b> Day(s)	Percentage Time Adjusted: (including this change) <b>32</b> %	Total # of Unreconciled Deferred Time CCO(s): (including this change) <b>0</b>

**THIS CHANGE ORDER PROVIDES FOR:**

Installation sequencing and added restrainer brackets pertaining to the installation of seismic isolation bearings.

This project provides for the seismic retrofit of the Antioch Bridge. The retrofit will install 82 friction pendulum isolation bearings, install cross bracing between pier columns on piers 12 through 31, install a shear key system at four hinges and install column casings around the columns supporting the slab bridge (pier 41 to abutment 77).

As part of the isolation bearing installation, the contract called for all bearings to be restrained against displacement until all bearings are installed. After a review by the Department of Engineering Services (DES) of the potential stresses that the new bearing installation would have on the structure, it was determined that the bearings could damage the girder flanges due to thermal movement if all the bearings were restrained until the final bearing was installed. In order to reduce these stresses and eliminate the potential damage, DES has provided an installation sequencing that will be required to be followed. The sequencing involves skipping from pier to pier on each frame of the structure.

In addition, DES has also requested the installation of restrainer brackets at 6 locations in order to safeguard against excessive bearing movement caused by thermal expansion. This change order provides for the installation of these restrainer brackets along with the bearing installation sequencing.

Based upon a time impact analysis, the changes will result in a 97 working day delay to the contract. This delay stems from the sequencing requirement that will cause the contractor to leapfrog their operations from pier to pier in lieu of the as-planned linear installation allowed by the contract. Additional delay will also be incurred due to the added restrainer brackets with the last 2 locations affecting the controlling operation. The change order provides for a 97 working day time extension to compensate for these delays.

Compensation will be provided for the contractor's direct costs of sequencing the bearing installation and for furnishing and installing the restrainer brackets. Delay costs will also be compensated associated with the 97 day contract extension. These costs include extended land and marine based project equipment and extended storm water pollution prevention (SWPP) measures. Extended time related overhead (TRO) costs shall also be compensated in accordance with Section 10-1.20 "Time-Related Overhead" of the contract special provisions.

Compensation for the direct cost of the change and the extended project equipment and SWPP measures will be paid as an adjustment of compensation at an agreed lump sum of \$1,321,668.00. Compensation for extended TRO costs will be paid as an adjustment of compensation at agreed unit price at a cost of \$1,940,000.00. The total change order cost of \$3,261,668.00 shall be funded from the contract's contingency fund. A cost analysis is on file.

Any additional costs associated with bird monitoring which may be necessary to mitigate potential nesting impacts to the project due to the 97 day time extension shall be paid on a force account basis under the existing Change Order No. 22.

Potential impacts associated with the removal of an access road at the end of the project being pushed into a non-ground disturbance period and potential impacts that could be incurred due to bird nesting as a result of this delay are deferred. These impacts are anticipated to be minimal, however, they are unknown at this time.

This change order was approved by the TBPOC at their December 9, 2010 meeting at a cost not to exceed \$3,700,000.

**CONTRACT CHANGE ORDER MEMORANDUM**

EA: 1A5214 CCO: 6 - 0

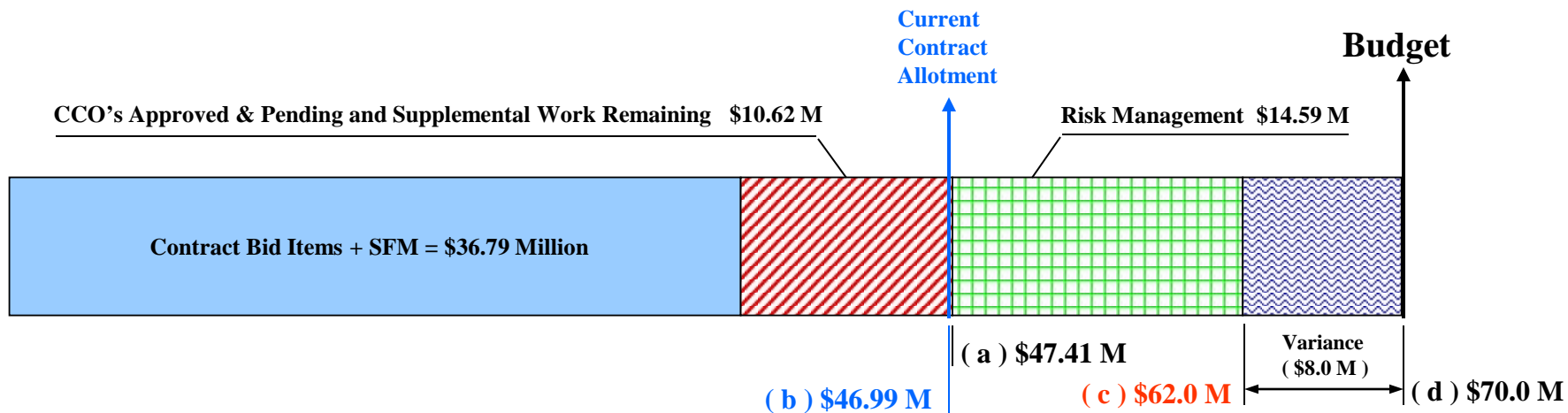
DATE: 11/30/2010 Page 2 of 2

<b>CONCURRED BY:</b>			<b>ESTIMATE OF COST</b>		
Construction Engineer:	William Howe	Date 11/30/10	THIS REQUEST		TOTAL TO DATE
Bridge Engineer:	David Tenorio	Date 11/30/10	ITEMS	\$0.00	\$0.00
Project Engineer:		Date	FORCE ACCOUNT	\$0.00	\$0.00
Project Manager:	Mo Pazooki	Date 11/30/10	AGREED PRICE	\$3,261,668.00	\$3,261,668.00
FHWA Rep.:		Date	ADJUSTMENT	\$0.00	\$0.00
Environmental:		Date	<b>TOTAL</b>	\$3,261,668.00	\$3,261,668.00
Other (specify):		Date	<b>FEDERAL PARTICIPATION</b>		
Other (specify):		Date	<input type="checkbox"/> PARTICIPATING <input type="checkbox"/> PARTICIPATING IN PART <input checked="" type="checkbox"/> NONE <input type="checkbox"/> NON-PARTICIPATING (MAINTENANCE) <input type="checkbox"/> NON-PARTICIPATING		
District Prior Approval By:		Date	FEDERAL SEGREGATION (if more than one Funding Source or P.I.P. type)		
HQ (Issue/Approve) By:		Date	<input type="checkbox"/> CCO FUNDED PER CONTRACT <input type="checkbox"/> CCO FUNDED AS FOLLOWS		
Resident Engineer's Signature:		Date	FEDERAL FUNDING SOURCE      PERCENT _____ _____ _____		

# Antioch Bridge Seismic Retrofit Contract 04-1A5214

## Budget Analysis

December 31, 2010



Contract Items (plus quantity over runs)	\$	34,926,344	
State Furnished Materials (SFM)	\$	1,868,000	
Subtotal	\$	36,794,344	
Supplemental Work	\$	5,920,000	
Contingency	\$	4,271,656	
Subtotal Original Contract Allotment	\$	46,986,000	
Supplemental Budget Allocation Approved	\$	-	
Subtotal Current Contract Allotment	\$	46,986,000	( b )
Remaining Unallotted Budget	\$	23,014,000	
(Current Budget Budget - Current Budget Allotment)			
Total Current Contract Budget	\$	70,000,000	( d )

Reported Total Forecast At Completion  
In 3rd Quarter 2010 TBSRP Report

\$ 63,640,000

Contract Items (plus quantity over runs)	\$	34,926,344	
State Furnished Materials (SFM)	\$	1,868,000	
Subtotal	\$	36,794,344	
Supplemental Work Remaining	\$	4,862,906	
CCO's			
CCO's (Approved ( 4 ) + Pending ( 15 ) = Total ( 19 )	\$	2,050,224	
CCO's = or > \$1 Million Pending POC's approval ( 1 )	\$	3,700,000	
Subtotal	\$	47,407,474	( a )
Risk Management Cost - Q4 2010 50% Probable	\$	14,587,000	
Q4 2010 Total	\$	61,994,474	( c )

Variance (Total - TBPOC Current Approved Budget)

\$ (8,005,526)



**TO:** Toll Bridge Program Oversight Committee (TBPOC)      **DATE:** December 1, 2010

**FR:** Jason Weinstein, Senior Program Coordinator, BATA

**RE:** Agenda No. - 5b

Item- Antioch/ Dumbarton Bridge Seismic Retrofit Updates  
Antioch Bridge CCO No. 6 (Bearings and Restrainers)

---

**Recommendation:**

**APPROVAL**

**Cost:**

Not to Exceed \$3.7 M

**Schedule Impacts:**

97-day Delay to Critical Path

**Discussion:**

This Contract Change Order is required to facilitate a change in the installation sequence of the seismic isolation bearings and bearing restrainers. Attached for your reference are documents that illustrate the changes to the bearing installation sequence. The contract did not originally call out a specific sequence for the bearing installation; however, after further review by the designers the stability of the structure needs to be maintained with a specific bearing installation sequence (see attachment).

The time impacts to the contractor's schedule for these changes are 67 days for the bearing sequence and 30 days for the restrainer brackets. Time-Related Overhead (TRO) for this contract is \$20,000/day.

In October 2010, staff brought to your attention an outstanding issue with respect to welding at Brooklyn Iron Works (BIW). The Department was put on notice by California Engineering Contractors (CEC) that the fabrication of the column cross-bracing at Antioch is being delayed at BIW due to CCO #7. In October there were 16 days of delay, which the Department owns because of CCO #7. At that time there was concern that further delay could push this issue to the point where the TBPOC would need to be involved because the delay cost would quickly approach \$1 M.

## *Memorandum*

However, due to this required change in the installation sequence of the seismic isolation bearings and installation of bearing restrainers, the delay from CCO #7 and this proposed CCO #6 will be concurrent. CCO #7 should not add further delay to the contract than what will be incurred by CCO #6.

Staff is seeking a not-to-exceed amount for CCO #6 as there are material and labor costs, as well as, some TRO+ (scaffolding, miscellaneous equipment, and jacking systems) that cannot be fully quantified at this time.

It is important to note that this 97-day delay pushes the work into a 2<sup>nd</sup> winter season and will impact when the temporary road is removed. If the permit constraints were put into the schedule for ground disturbing activities (Oct through April) there would be an additional 2 months of delay. However, there may be ways to mitigate this delay. The not-to-exceed amount of \$3.7 M requested assumes that this delay cannot be mitigated and the project would be suspended after all seismic work is completed. The project would then resume when the permitting window allows for removal of the temporary access road. Staff will update the TBPOC at future meetings on this temporary road removal item.

### **Attachment(s):**

1. Restrainer Bracket Detail
2. Contractor Baseline Bearing Installation Sequence
3. CCO #6 Bearing Installation Sequence
4. Antioch Bridge Seismic Retrofit Contract 04-1A5214, Budget Analysis, September 30, 2010
5. CCO #6 Draft Memorandum
6. CCO #6 Draft CCO



# TOLL BRIDGE PROGRAM OVERSIGHT COMMITTEE

CALTRANS BAY AREA TOLL AUTHORITY CALIFORNIA TRANSPORTATION COMMISSION

## MEETING MINUTES

December 9, 2010, 10:00am – 1:00pm

Caltrans HQ, Director's Conference Room, 1120 N Street, Sacramento, CA

TBPOC – PMT pre-briefing, 10:00am – 11:00am

TBPOC meeting, 11:00am – 1:00pm

**Attendees:** TBPOC Members: Steve Heminger, Bimla Rhinehart, and Cindy McKim  
PMT Members: Tony Anziano, Andrew Fremier, and Dina Noel (for S. Maller)  
Participants: Ade Akinsanya, Michele DiFrancia, Mike Forner, Steven Hulsebus, Beatriz Lacson, Rick Land, Brian Maroney, Bart Ney, Mo Pazooki, Bijan Sartipi, Jon Tapping, Ken Terpstra, Chris Traina, and Jason Weinstein  
Part-time (ABF): Brian Petersen and Peter Vander Waart

Convened: 11:11 AM

Items		Action
<b>1. CHAIR'S REPORT</b>		
o N/A		
<b>2. TBPOC/ABF/ TYLMN Discussion</b>		
a. Self-Anchored Suspension (SAS) Superstructure Mitigation and Acceleration Update		
• T. Anziano reported that with respect to ZPMC, significant progress is being achieved given the focus on acceleration and, the teamwork between ZPMC staff and Team China has markedly improved.		
o B. Petersen gave a brief project update.		
➤ The tower lift shipment is arriving on December 13. Tower erection should be completed by December 23.		
➤ All roadway boxes have been shipped or are ready to be shipped, except for 13 and 14 which are forecast to be shipped in July 2011.		
➤ The use of a contractor- recommended wire to resolve a		

(continued)

Items	Action
<p>welding issue has been implemented. There may be schedule impacts of two to three weeks past July 11, 2011. B. Maroney is meeting with a panel of welding experts to ensure quality and maintain schedule.</p> <ul style="list-style-type: none"><li>○ TBPOC discussion included incentive impacts, meeting milestones, inspection codes, cultural/ political challenges, and holiday work schedules.</li><li>○ B. Petersen recommended a TBPOC meeting with ZPMC's Messrs. Kang and Li in China to reaffirm the schedule and ensure a productive path forward.</li></ul>	<ul style="list-style-type: none"><li>• Staff to re-schedule the TBPOC January 6, 2011 meeting after a potential TBPOC trip to China.</li></ul>
<p><b>3. CONSENT CALENDAR</b></p> <ul style="list-style-type: none"><li>a. TBPOC Meeting Minutes<ul style="list-style-type: none"><li>1) November 9, 2010 Meeting Minutes</li></ul></li><li>b. Draft Project Progress and Financial Update November 2010</li><li>c. Yerba Buena Island Transition Structures No. 1 Contract Change Order No. 33-S0 &amp; S1 (Modular Seismic Joints), not to exceed \$1,750,000.00</li></ul>	<ul style="list-style-type: none"><li>• The TBPOC <b>APPROVED</b> the Consent Calendar, as presented.</li></ul>
<p><b>4. SAN FRANCISCO-OAKLAND BAY BRIDGE (SFOBB) UPDATES</b></p> <ul style="list-style-type: none"><li>a. Yerba Buena Island Transition Structures (YBITS) No. 1<ul style="list-style-type: none"><li>1) Update<ul style="list-style-type: none"><li>• T. Anziano reported that MCM work on the YBITS No. 1 job is progressing well.</li></ul></li></ul></li><li>b. Oakland Touchdown (OTD) No. 2<ul style="list-style-type: none"><li>1) Detour and Staging Concept Update<ul style="list-style-type: none"><li>• B. Maroney gave a progress summary on the Temporary Oakland Touchdown Detour (TOTDD) work items. He presented, for TBPOC information, a preliminary cost</li></ul></li></ul></li></ul>	



(continued)

Items	Action
<p>estimate for TOTDD and pointed out that the capital outlay support (COS) estimate is dependent upon the schedule, yet to be developed. He projected an eastbound opening by Memorial Day 2011 and a westbound opening by year-end 2011.</p> <ul style="list-style-type: none"><li>○ Full bridge closure vs. lane closures was discussed. Mindful of the S-curve experience, S. Heminger, the Chair, requested a preliminary report on the operational impacts of such closures at the TBPOC February 2011 meeting.</li><li>• B. Maroney requested TBPOC approval to authorize an expenditure of not-to-exceed \$10M to keep the TOTDD work on track through January 2011.</li><li>○ B. Rhinehart indicated that such approval be contingent on delivery of a final scope, schedule and budget at the TBPOC February 2011 meeting.</li><li>○ C. McKim added as an approval condition that the expenditure be limited to utility relocation, right-of-way, Burma Road extension, permit, billboards.</li><li>• B. Ney presented the “Oakland Touchdown Detour Communications Plan Draft Outline” and described the two-pronged approach envisioned for the TOTDD. A strategy integrating successful aspects of previous bridge closures with new concepts to help deliver the complex messaging involved is under development.</li><li>○ The Chair requested a refinement of the draft Communications Plan by the TBPOC February 2011 meeting, as a third condition to the expenditure approval requested</li></ul>	<ul style="list-style-type: none"><li>• Staff to update the TBPOC on the operational impacts of TOTDD bridge/lane closure(s) at the TBPOC February 2011 meeting.</li><li>• Although presented as an informational item, the TBPOC <b>APPROVED</b> an expenditure request for an amount not to exceed \$10M, conditional upon the following being presented at the TBPOC February 2011 meeting: (1) scope, schedule and budget; (2) updated information on utility relocation, right-of-way, Burma Road extension, permit, billboards; and (3) refinement of the Communications Plan.</li></ul>

(continued)

Items	Action
<p>above.</p> <p>c. Yerba Buena Island Bicycle Access</p> <ul style="list-style-type: none"><li>• In response to the TBPOC's request for a conceptual proposal for bicycle-pedestrian access to Yerba Buena Island (YBI) at seismic safety opening (SSO), S. Hulsebus presented for TBPOC consideration a shoulder option.</li><li>○ Discussion topics included bicyclist emergency evacuation alternatives, elevator options, bicycle advocacy/CHP concerns, safety matters, and City of San Francisco future YBI plans.</li><li>○ It was the consensus that the bicycle-pedestrian access to YBI warrants further exploration.</li></ul>	<ul style="list-style-type: none"><li>• The Department to follow up with the City of San Francisco re planned improvements for bicyclists when they touch down at YBI, and report back to the TBPOC.</li><li>• The Department to further analyze the geometrics of the bike path at the eastbound on-ramp, and report back to the TBPOC.</li></ul>
<p><b>7 DUMBARTON/ANTIOCH BRIDGE SEISMIC RETROFIT UPDATES</b></p> <p>a. Update</p> <ul style="list-style-type: none"><li>• M. Forner provided updates on the Antioch and Dumbarton Bridge Seismic Retrofit projects.</li><li>○ <u>Antioch Bridge</u>: Progress in the field continues. The job is at 30% complete. The first isolation bearings have been installed</li><li>○ <u>Dumbarton Bridge</u>: Field work has begun and is going well.</li></ul> <p>b. Antioch Bridge Contract Change Order No. 6 (Bearings and Restrainers)</p> <ul style="list-style-type: none"><li>• M. Forner presented, for TBPOC approval, CCO No. 6 in an amount not to exceed \$3.7M, to facilitate a change in the installation sequence of the seismic isolation bearings and bearing restrainers in order to maintain structure stability.</li><li>○ Schedule impact is a 97-day delay, with an additional delay of two</li></ul>	<ul style="list-style-type: none"><li>• The TBPOC <b>APPROVED</b> CCO No. 6 in an amount not to exceed \$3.7M, as presented.</li></ul>

**(continued)**

Items	Action
months if the permit constraints related to temporary road removal is not mitigated.	
<p><b>8 OTHER BUSINESS</b></p> <ul style="list-style-type: none"><li>• At the Chair's request, B. Sartipi and M. Pazooki gave an update on the recent repair of the San Mateo-Hayward Bridge retrofit work.<ul style="list-style-type: none"><li>○ A crack discovered in the Y-shaped steel elements under the deck was fixed under an emergency contract. R. Land indicated that additional work needs to be done to avert increased maintenance in the future.</li><li>○ The question as to whether the work is a Toll Bridge Program or District 4 undertaking was discussed. Regardless of categorization (retrofit or rehab), fund allocation from BATA would still be required for the work.<ul style="list-style-type: none"><li>➤ It was suggested that the issue be evaluated and funding ramifications be looked into in time for a BATA funding request.</li></ul></li></ul></li></ul>	<ul style="list-style-type: none"><li>• The Department to look into funding ramifications, and give an update and cost/schedule presentation at the TBPOC January 2011 meeting.</li></ul>

Adjourned: 1:05 PM

***(continued)***

**TBPOC MEETING MINUTES**  
December 9, 2010, 10:00am – 1:00pm

**APPROVED BY:**

\_\_\_\_\_  
**STEVE HEMINGER**, TBPOC Chair  
Executive Director, Bay Area Toll Authority

\_\_\_\_\_  
Date

\_\_\_\_\_  
**BIMLA G. RHINEHART**, TBPOC Vice-Chair  
Executive Director, California Transportation Commission

\_\_\_\_\_  
Date

\_\_\_\_\_  
**CINDY McKIM**  
Director, California Department of Transportation

\_\_\_\_\_  
Date



## *Memorandum*

**TO:** Toll Bridge Program Oversight Committee (TBPOC)      **DATE:** January 26, 2011

**FR:** Mo Pazooki, Project Manager, Caltrans  
Peter Lee, Senior Program Coordinator, BATA

**RE:** Agenda No. - 7  
Item- Other Business  
San Mateo-Hayward Bridge Retrofit Rehabilitation Update

---

**Recommendation:**

For information only

**Cost:**

\$10 million

**Schedule Impacts:**

N/A

**Discussion:**

Caltrans has been working on several alternatives for a final repair to the fractured wishbone girder detail on the San Mateo-Hayward Bridge. The interim fix was completed several months ago and is undergoing weekly field inspection and monitoring. Caltrans' type-selection process has selected a two slab replacement with pre-cast pre-stressed panels in both directions (Alternative #4). As requested by the TBPOC, the repair strategy will be presented to the Seismic Peer Review Panel in February 2011.

A preliminary schedule for the project would complete design by May 2011, advertise in June 2011, and start construction by August 2011. The estimated cost of the project is \$10 million, including support.

Construction would likely require two months to relocate utilities and fabricate the pre-cast panels before needing a full bridge closure for slab removal and panel installation, which puts the full bridge closure in late September/early October 2011.

A major project risk is completing the slab replacement over a regular two day weekend. An initial construction schedule shows a full bridge closure between

## *Memorandum*

Friday 8pm to Monday 4am with minimal float. Staff will continue to evaluate the schedule as the design is refined.

### **Attachments**

San Mateo-Hayward Bridge Retrofit Rehabilitation PowerPoint Presentation  
(Caltrans)

# SAN MATEO – HAYWARD BRIDGE REHABILITATION

**District 04**

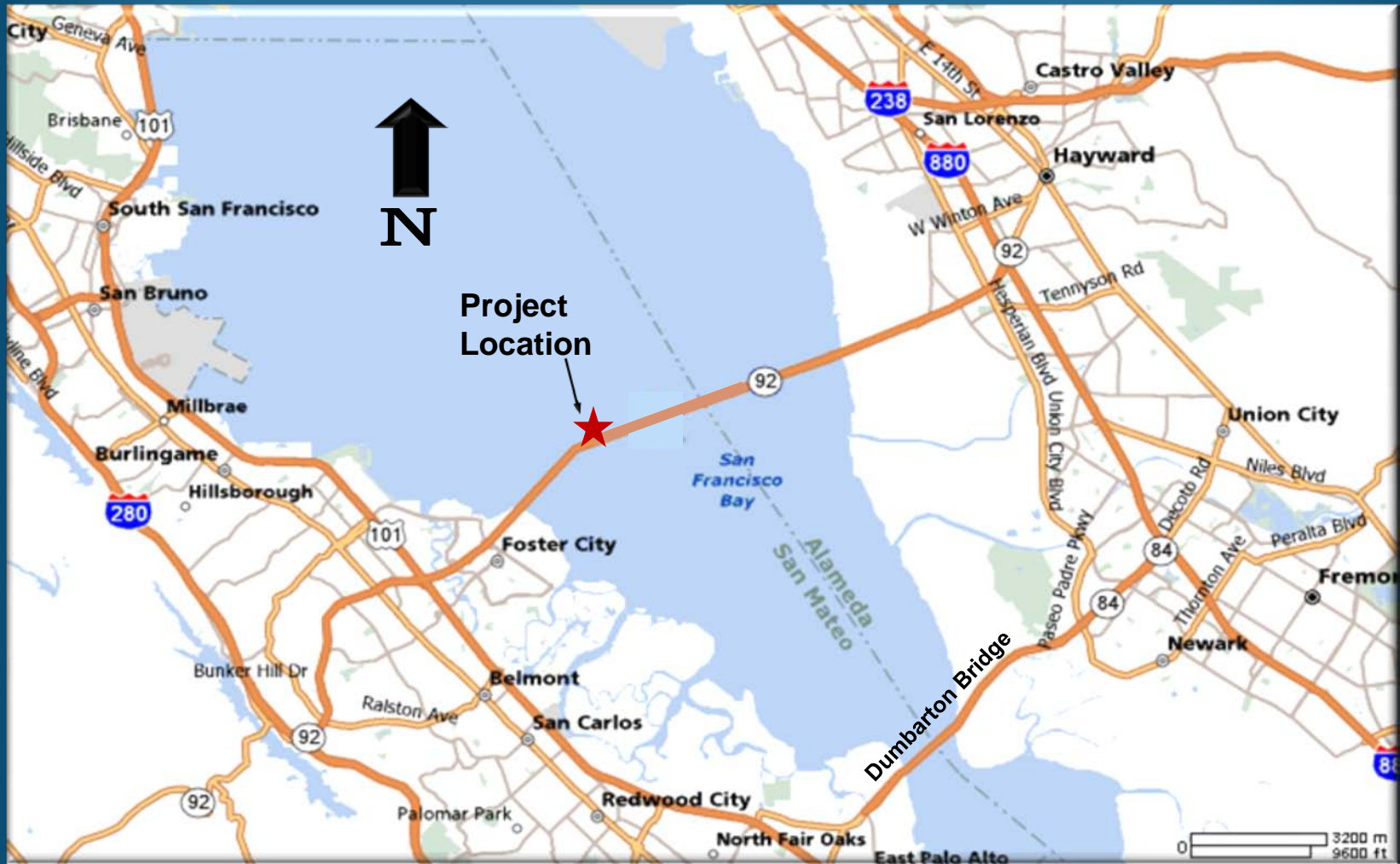
**San Mateo / Alameda County**

**Route 92 PM R16.3 (Br. # 35-0054)**



# SAN MATEO – HAYWARD BRIDGE REHABILITATION

## Project Location





# SAN MATEO – HAYWARD BRIDGE REHABILITATION



# SAN MATEO – HAYWARD BRIDGE REHABILITATION

## Seismic Retrofit Program (2000 Completed)

Enhancement made:

- Seat Extenders added at each pier
- Existing Cable Restrainers reattached
- CISS pile extensions at Flexible piers
- Provided 36" seismic gap





# SAN MATEO – HAYWARD BRIDGE REHABILITATION

## Existing Condition



# SAN MATEO – HAYWARD BRIDGE REHABILITATION

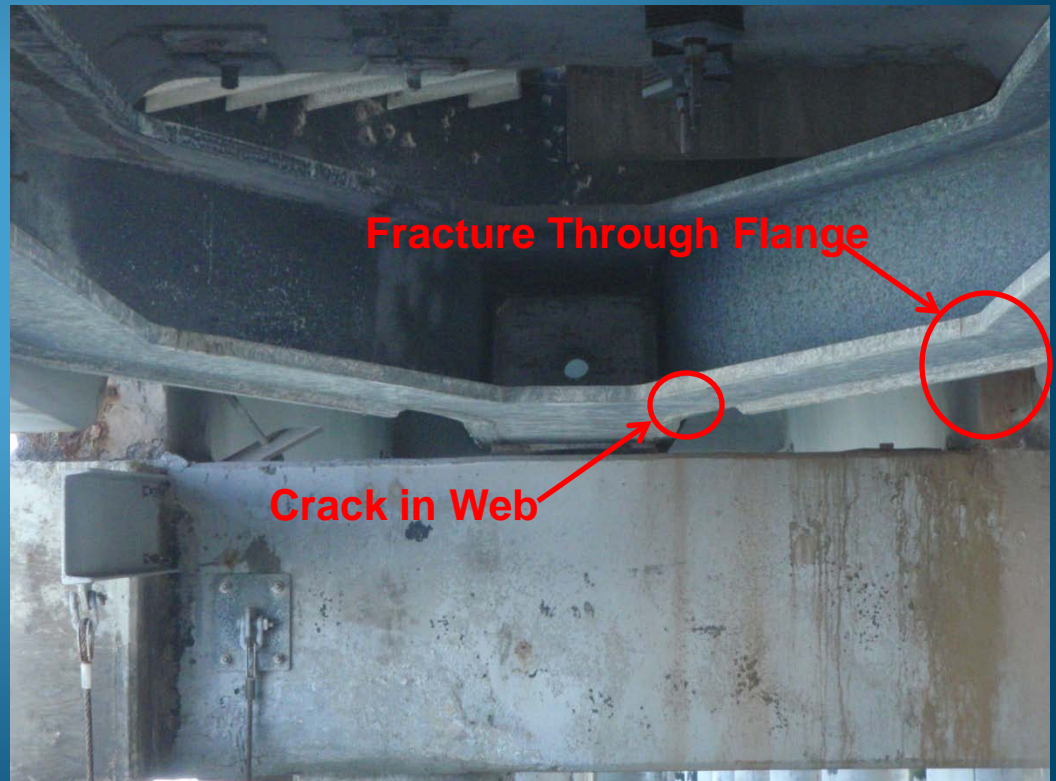
## Initial Cracks



Fracture in Flange



Crack in Web  
(After cleaning and dye penetrant)



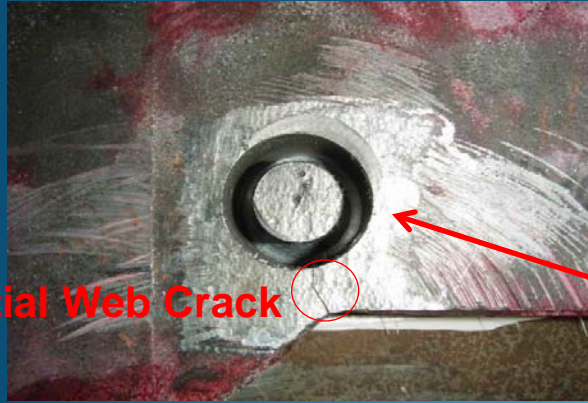
Fracture Through Flange

Crack in Web



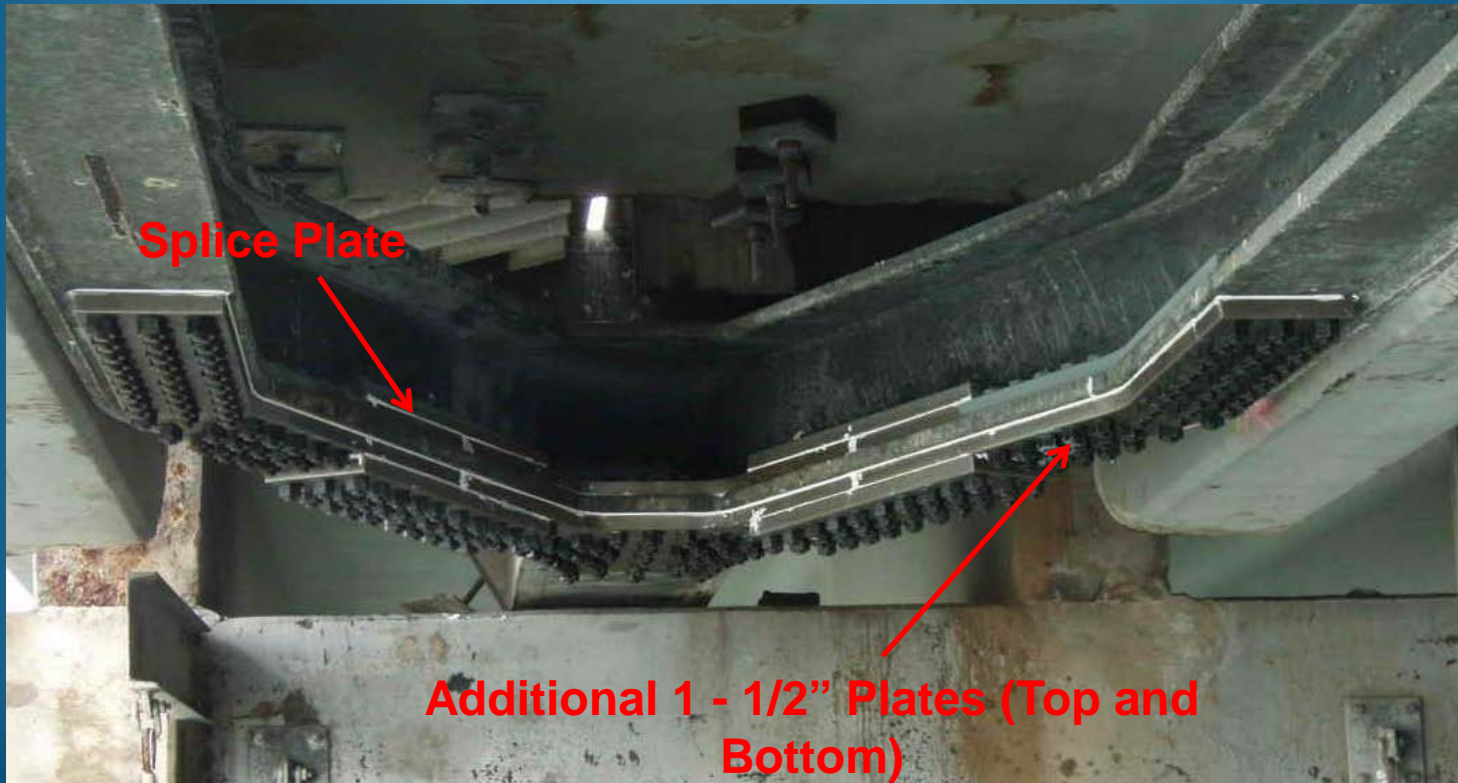
# SAN MATEO – HAYWARD BRIDGE REHABILITATION

## Repairs Completed



Initial Web Crack

Crack Propagation  
Arrest Hole

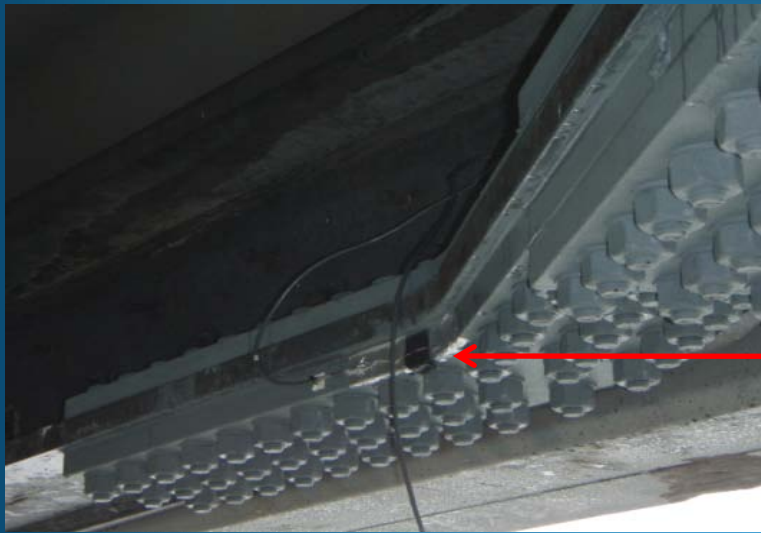


Splice Plate

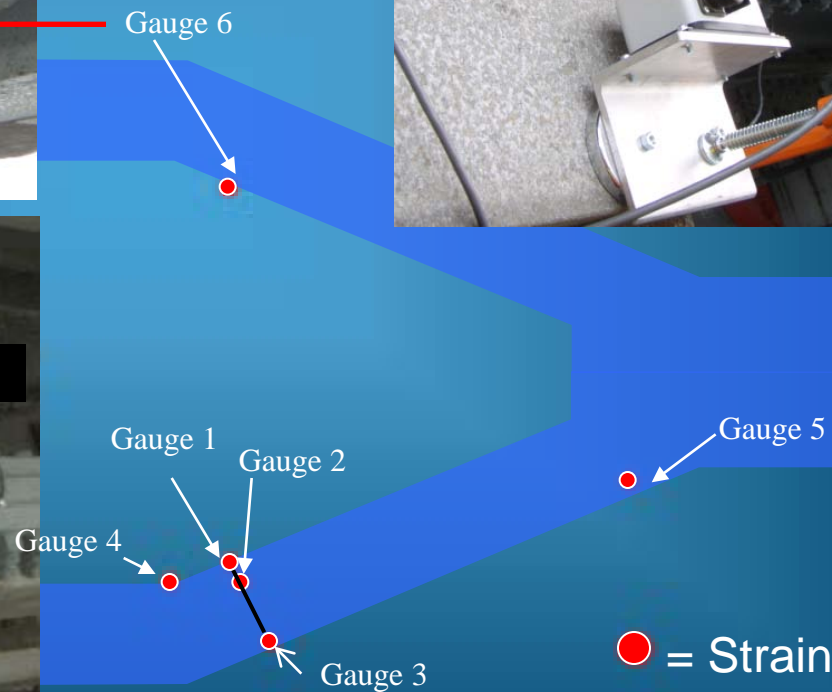
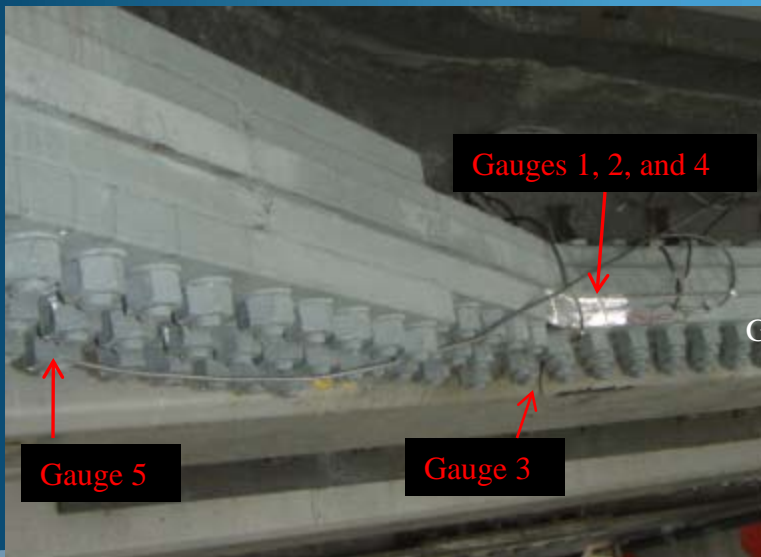
Additional 1 - 1/2" Plates (Top and  
Bottom)

# SAN MATEO – HAYWARD BRIDGE REHABILITATION

## Weekly Field Inspection and Monitoring of Repair



Vertical Deflection Measurement

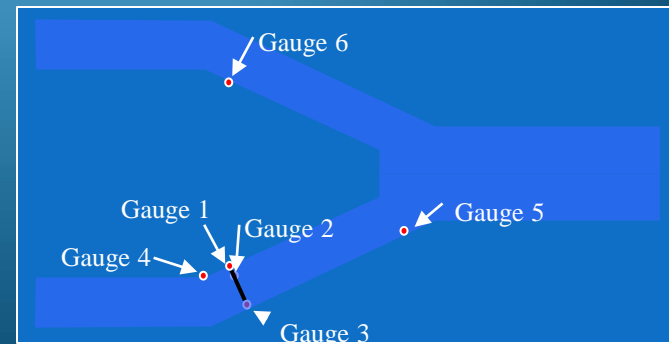
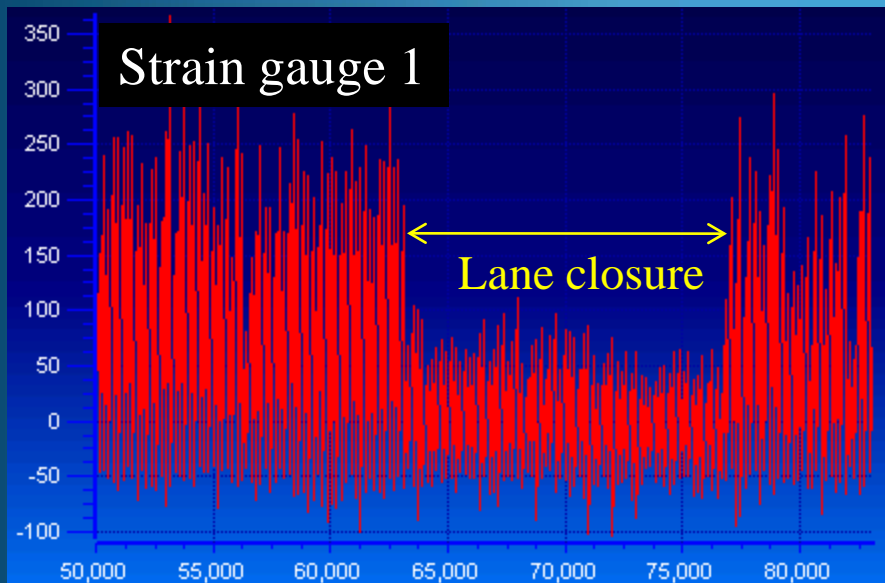
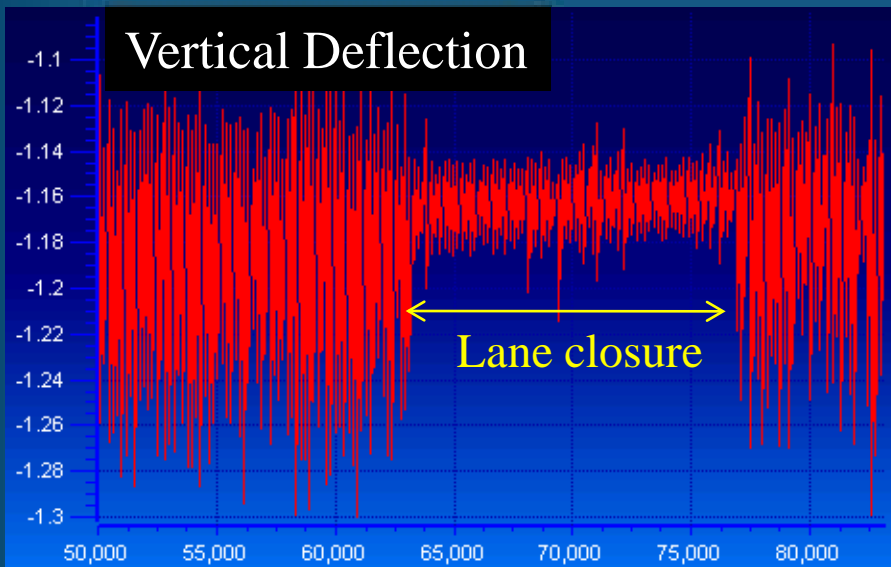


● = Strain Gauges

# SAN MATEO – HAYWARD BRIDGE REHABILITATION

## Monitoring of Repair

- Maximum stress due to live loads is around 14 ksi.
- Maximum relative deflection between deck and wishbone is around 0.2 inch (does not account for actual deck flexure).
- The vertical deflection has considerable impacts on stress of wish-bone girders.



# SAN MATEO – HAYWARD BRIDGE REHABILITATION

## Preferred Replacement Alternatives

- A total of five alternatives were considered for the replacement of Span 38. From these alternatives the preferred option is **Alternative #4** followed by Alternative #3A. Alternative #4 will also replace Span 285.
- Structure strategy was finalized on 1/13/11 and alternative 4 was selected to be the preferred alternative.
- Alternative #4 is considered to be the best option because it can be accomplished in the shortest duration (one weekend closure) and has the least risk associated with it.

Advantages of Alternative #4 include:

1. Primarily a removal and erecting process
2. No construction within water
3. Bridge construction can be accomplished within one weekend closure
4. Seismic joint will be incorporated into prefabricated slab units (No CIP work)
5. Addresses shear cracking observed in adjacent span
6. Reduces maintenance inspection work

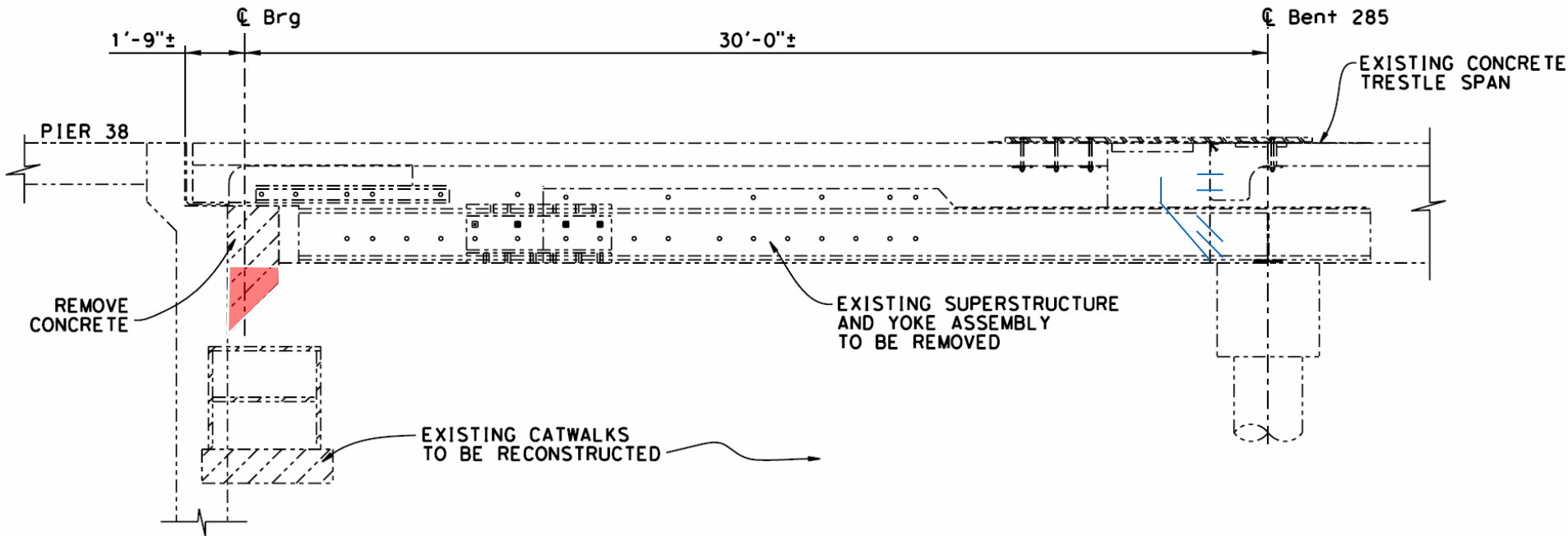
Alternative / Structure Type	Bridge Closure Duration
Alternative 3A Structural Steel Girder w/ PC Concrete Deck Slabs	TBD (Expected to be greater than 56 hours due to casting & curing)
Alternative 4 Two Span PC PS Voided Slab	56 hours (8PM Friday - 4am Monday)



# SAN MATEO – HAYWARD BRIDGE REHABILITATION

## Alternative #3A

*Precast Full Depth Deck on Structural Steel I-Girder (single span replacement between Pier 38 and Bent 285)*



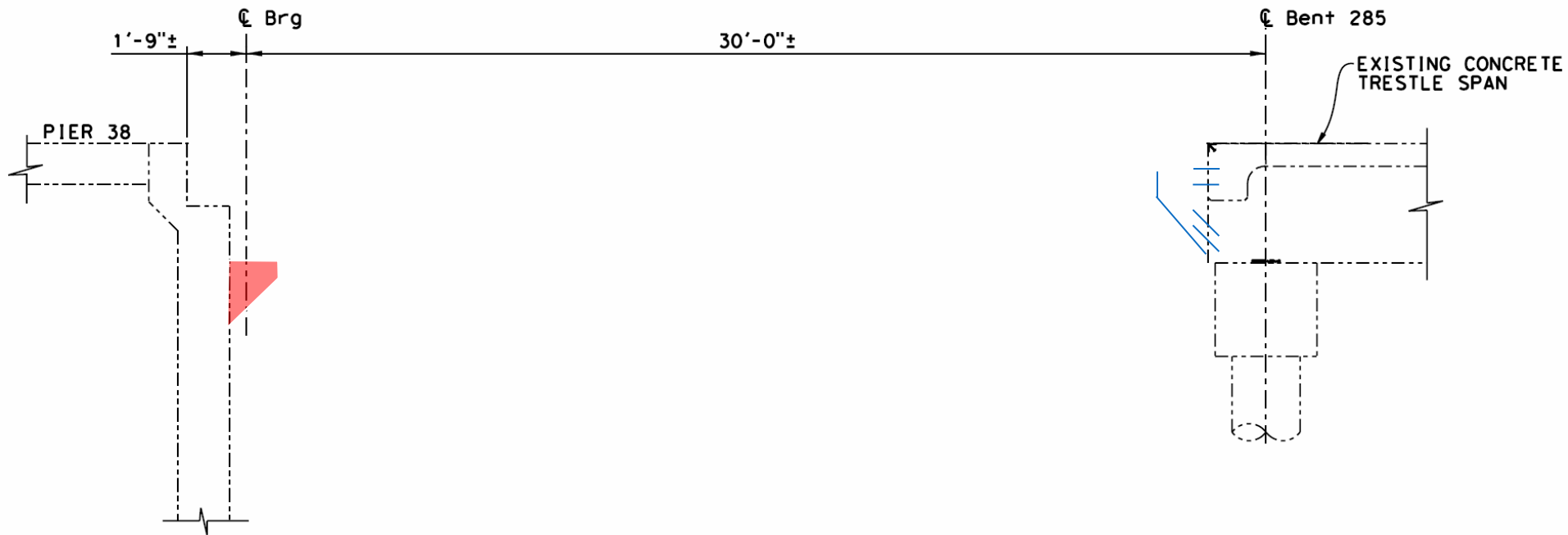
### Construction activities prior to Bridge Closure

- Existing Catwalk to be removed / reconfigured (currently suspended from superstructure along Bent 285)
- Steel Corbels to be constructed prior to removal of existing superstructure
- Existing utilities to be relocated along southerly side of span
- Drill and Bond / Place formwork for new joint assembly anchor
- Secure end of yoke assembly to bent cap

# SAN MATEO – HAYWARD BRIDGE REHABILITATION

## Alternative #3A (Continue)

*Precast Full Depth Deck on Structural Steel I-Girder (single span replacement between Pier 38 and Bent 285)*



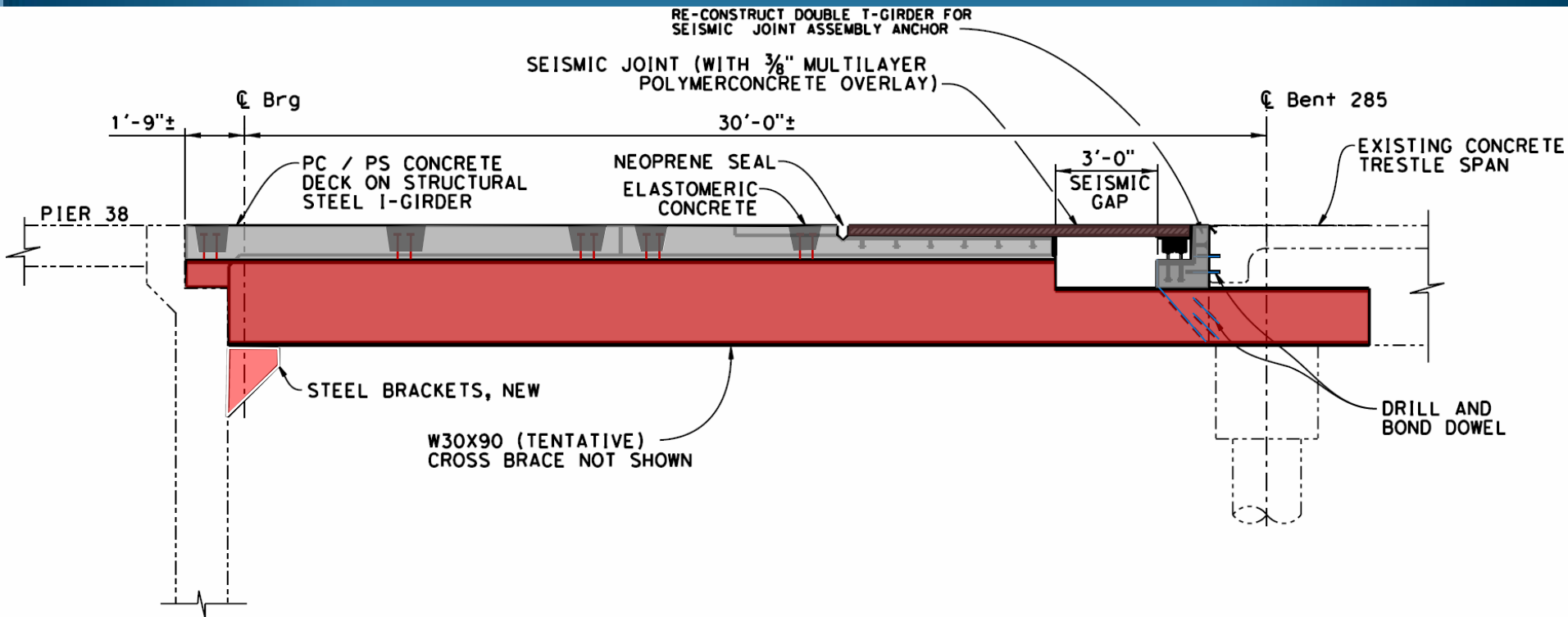
### Construction activities during Bridge Closure

- Existing Joint Seal Plates to be removed
- Detach yoke near bent cap while Double T-girder unit is held by crane
- Existing Double T-girder units to be removed together with yoke assembly

# SAN MATEO – HAYWARD BRIDGE REHABILITATION

## Alternative #3A (Continue)

*Precast Full Depth Deck on Structural Steel I-Girder (single span replacement between Pier 38 and Bent 285)*



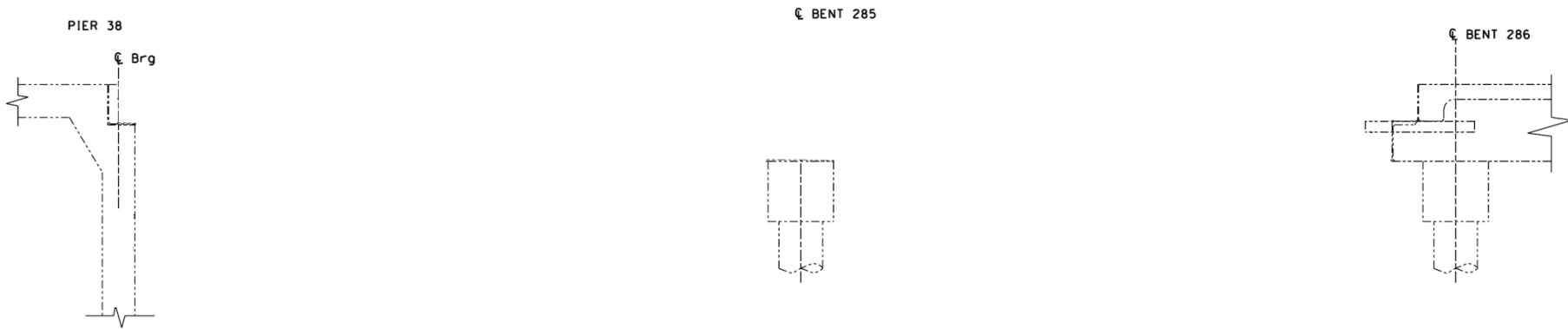
### Construction activities during Bridge Closure

- New Steel I beams to be placed at same location as existing yoke assembly
- Place Precast deck slab on I-girder
- Weld shear studs through blockouts
- Grout blockouts with high strength non-shrink grout
- Place seismic joint seal plate
- Cast concrete for joint assembly anchor

# SAN MATEO – HAYWARD BRIDGE REHABILITATION

## Alternative #4

*Precast P/S Voided Slab (Two span replacement between Pier 38 and Bent 286)*



### Construction activities prior to Bridge Closure

- Existing Catwalk to be removed / reconfigured (currently suspended from superstructure along Bent 285)
- Existing utilities to be relocated along southerly side of spans

### Construction activities during Bridge Closure

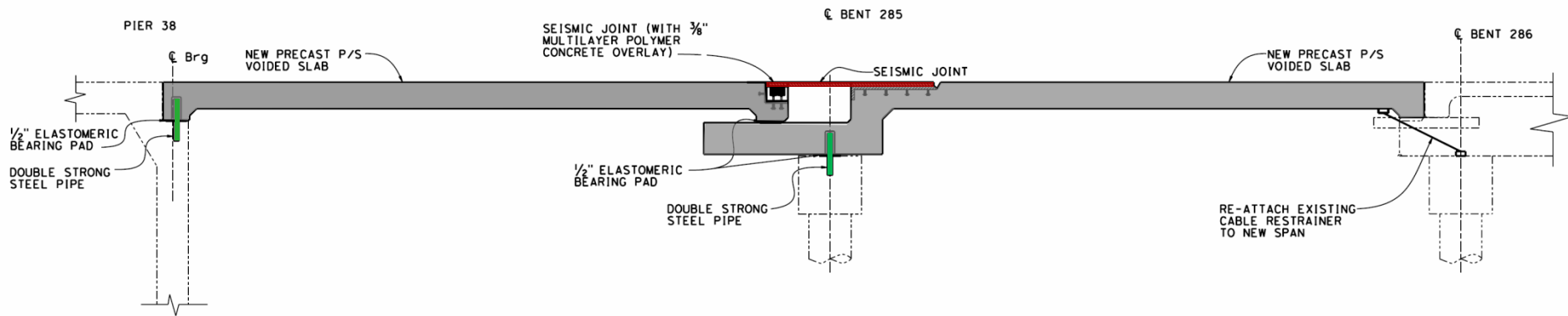
- Existing Joint Seal Plates to be removed
- Existing Double T-girder units to be removed together with yoke assembly



# SAN MATEO – HAYWARD BRIDGE REHABILITATION

## Alternative #4 (Continue)

*Precast P/S Voided Slab (Two span replacement between Pier 38 and Bent 286)*



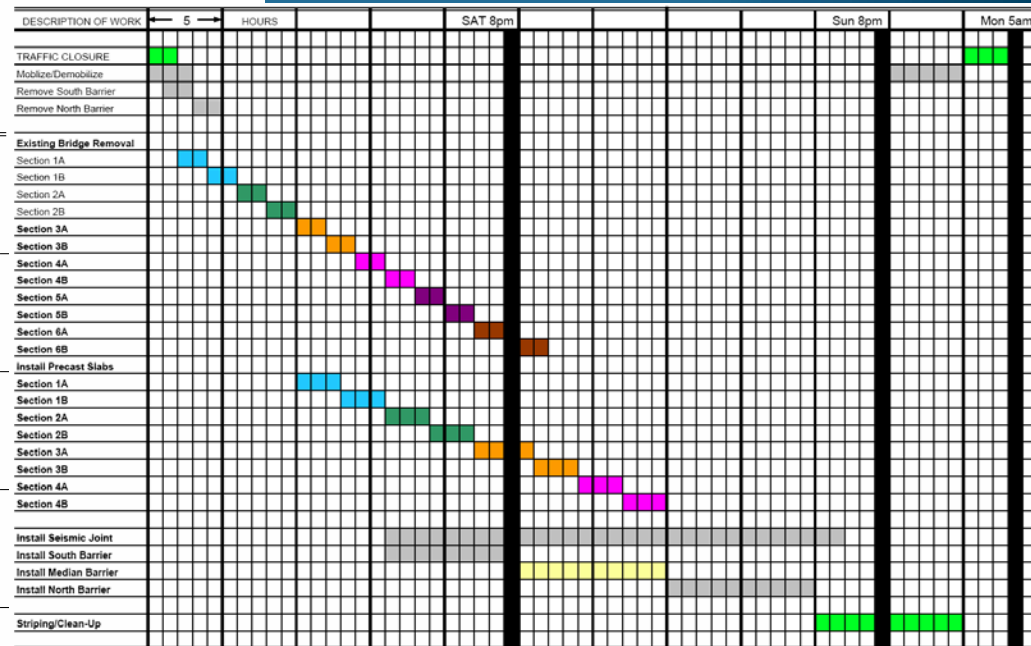
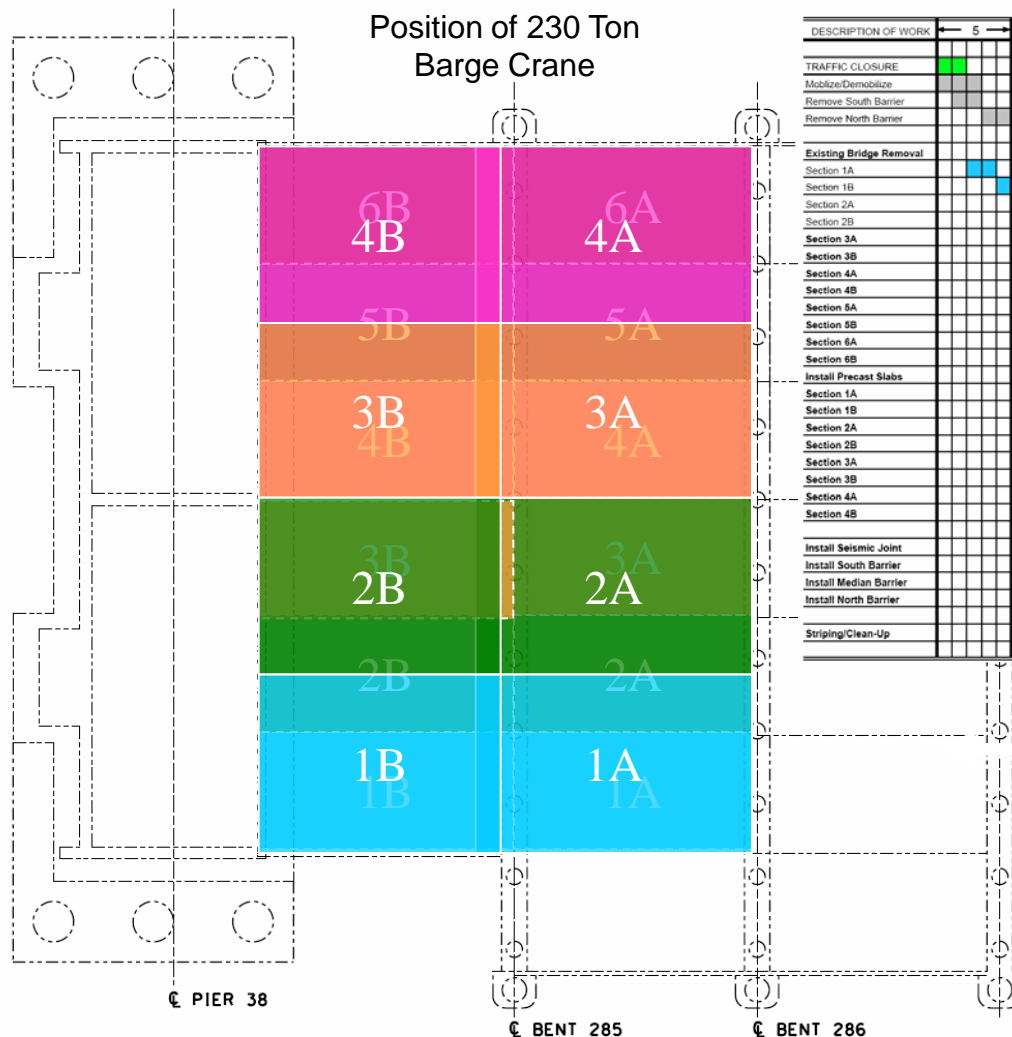
### Construction activities during Bridge Closure

- Install Precast P/S slab between Bent 285 and Bent 286
- Core into Bent cap and install steel pipe dowel
- Install Precast P/S slab between Pier 38 and Bent 285
- Core into Pier 38 and install steel pipe dowel
- Install seismic joint plate
- Install concrete barrier Type 26(Mod)

# SAN MATEO – HAYWARD BRIDGE REHABILITATION

## Alternative #4 (Continue)

Removal & Replacement Sequence / Construction activity durations



56 hour duration  
Friday 8pm – Monday 4am

# SAN MATEO – HAYWARD BRIDGE REHABILITATION

## Existing Utilities

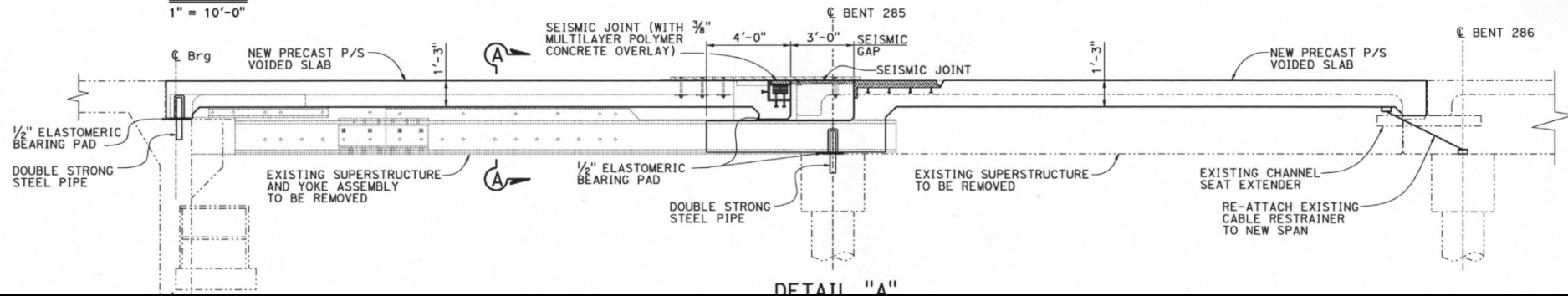


- All utilities will be temporary relocated prior to closure
- Utilities will be reinstalled after retrofit

# SAN MATEO – HAYWARD BRIDGE REHABILITATION

## Conclusion

*Precast P/S Voided Slab (Two span replacement between Pier 38 and Bent 286)*



- No Construction in water
- Minimal preparation of existing support locations.
- Two Voided slabs spans between Pier 38 and Bent 286
- Replaces adjacent Double T-girder with shear cracking
- Seismic gap to be provide at Bent 285
- No alteration of Pier 38

**Alternative #4 is the recommended option**





# SAN MATEO – HAYWARD BRIDGE REHABILITATION

## Structure Alternatives GP Cost

Description	Alternative 3A Structural Steel Girder PC/PS Concrete Deck Slabs	Alternative 4 Two Span Option Pier 38 to Bent 286
ROADWAY ITEM WORK	\$1,300,000	\$1,300,000
STRUCTURES ITEM WORK	\$2,373,453	\$3,042,505
OTHER COSTS	\$0	\$0
TIME RELATED OVERHEAD (15%)	\$551,018	\$651,376
SUBTOTAL ITEM COSTS	\$4,224,470	\$4,993,881
MOBILIZATION (10%)	\$469,386	\$554,876
SUBTOTAL COMBINED ITEM WORK	\$4,693,856	\$5,548,756
SUPPLEMENTAL WORK ITEMS (10% of Item Work)	\$469,386	\$554,876
STATE FURNISHED ITEMS	\$0	\$0
TOTAL COMBINED ITEM WORK (Engineers Estimate Without Escalation or Contingencies)	\$5,163,242	\$6,103,632
ESCALATION TO CONSTRUCTION MIDPOINT (6/11/2011)	\$142,025	\$167,892
CONTINGENCIES (25%)	\$1,326,317	\$1,567,881
TOTAL CAPITAL COSTS	\$6,632,000	\$7,840,000
SUPPORT COST DESIGN	\$1,000,000	\$1,000,000
SUPPORT COST CONSTRUCTION	\$850,000	\$960,000
TOTAL COSTS	\$8,482,000	\$9,800,000

## Director order project schedule

Milestone	Projected Completion Date
100% Plans, Specifications & Estimate	05/31/2011
Advertise	06/15/2011
Bid Opening	07/15/2011
Award Contract	08/01/2011